American Cinematographer

FOR AMATEUR AND PROFESSIONAL PHOTOGRAPHERS

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Eastman Negative Emulsions
HUSE and CHAMBERS

Lab Chiefs Leshing and Nickolaus Disagree with Cameramen

Filming Jungle Djukas
DE VINNA

Mitchell Camera's Story
HOKE

Technicolor's Early Battles
KALMUS

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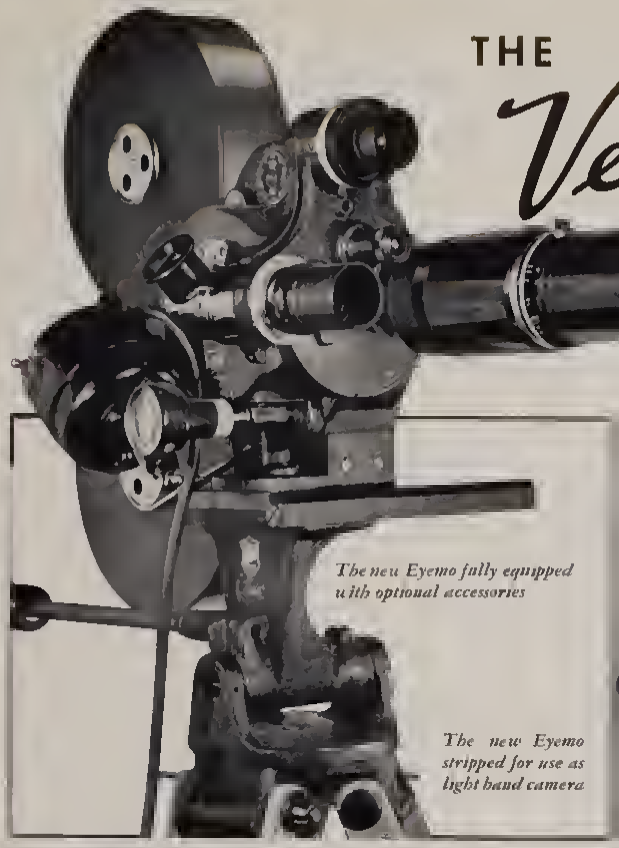

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The Front Cover

HENRY SHARP, A.S.C., at the Paramount Studio between scenes shows Jovce Mathews, newcomer, how these giant cameras are worked. The production is "Parents on Probation," in which the young woman has the leading romantic role, the chief leads being Charles Ruggles and Mary Boland.

Hal A. McAlpin is the stillman who caught the exposure. We submit he has done a worthy piece of work. He has brought to us the serious face of the cinematographer, bearing the marks of responsibility which are bound to accompany the features of a man answerable in the photographic side for a troupe's daily budget frequently mounting to many thousands of dollars.

And he has brought to us the eager, alert, intelligent face of a young woman who is looking upon something that is new to her, something that thrills her, upon a phase of life that marks the difference between play-acting and reality.

There is no occasion to draw upon her imagination at the instruction of a director. That imagination is stirred by the impressive achievements of the noiselessly moving precision machinery under her hand.

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Three NEW

Eastman Negative Emulsions:

Background X, Plus X, and Super XX

By Emery Huse and Gordon A. Chambers

WEST COAST LABORATORY MOTION PICTURE
FILM DEPARTMENT EASTMAN KODAK COMPANY

THE history of the development of the art of making motion pictures is extremely interesting, particularly so in some of its technical aspects. Outstanding among these technical considerations is the negative photographic emulsion, which has undergone a tremendous change during the past twenty five years.

The year 1913 marked the introduction of panchromatic motion picture negative film. Prior to this time motion picture films were but two in number, comprising a single negative emulsion and a single positive emulsion on which prints were made.

Generally speaking, the same type of panchromatic emulsion was manufactured and sold until 1928, when the first of the motion picture series of panchromatic emulsions, known as Type I, was manufactured by the Eastman Kodak Company.

1928 Turning Point

The year 1928 marked a very definite turning point in the technical side of the motion picture industry, because it was in that year that the most notable advances were made which led up to current practice.

Aside from the introduction of panchromatic motion picture negative film for general use, sound photography was given its first chance in dramatic production. Likewise, studio lighting began its metamorphosis from arc lamps to mazda lamps. Prior to 1928 there had been very little panchromatic negative film used.

The introduction of mazda lighting equipment at the same time that panchromatic film was being generally advocated provided an incentive toward more complete use of this type of film.

During the year 1928 it was found necessary to make an improvement in the panchromatic type of emulsion then in use which revealed itself as a faster and somewhat softer emulsion. This film was known as Type II.

It was not until February, 1931, that the first radical departure was made in the panchromatic negative emulsion for it was at that time the first of the Super Sensitive types of panchromatic film was introduced by the Eastman Kodak Company. This film was known to the trade as Super-Sensitive Panchromatic Negative, and it was adopted quite generally for use in motion picture production almost immediately after its introduction.

Photography Enhanced

This Super Sensitive type of film was materially faster and finer grained than its predecessor, and for the first time it gave the cameraman a much better tool with which to work. Likewise, it considerably enhanced the quality of his photographic endeavors.

Two years after the introduction of Super-Sensitive Panchromatic Negative the Eastman Kodak Company introduced an entirely different type of panchromatic emulsion to the motion picture trade.

July, 1933, marked the first appearance of Eastman Background Negative. This emulsion was one of very high quality photographically, resulting from an extremely fine grain emulsion structure. It was approximately one-half the speed of Super-Sensitive Negative.

The purpose for its introduction was to fill a needed field in the art of projection background work, and it was not long before this emulsion was generally adopted as the medium on which projection background plates were photographed. Prints from these negatives are projected on to a background screen in front of which dramatic action is photographed in a composite scene.

Super X Pan in 1935

March, 1935, marked the advent of a new and improved panchromatic negative. This film became known as Eastman Super X Panchromatic Negative film. It was somewhat higher in speed than its predecessor, Super-Sensitive, gave much less graininess and provided a marked improvement from the standpoint of photographic quality.

At the time of this writing, over three years later, Super X Panchromatic Negative is in general use in the motion picture industry.

However, on October 21, 1938, the first of another improved panchromatic motion picture negative film was introduced to the motion picture trade under the name Eastman Plus X Panchromatic Negative film.

This film has twice the speed of Super X, finer grain, and similar developing characteristics, all lending themselves to finer photographic quality. It is felt that this film will in a relatively short time replace Super X Negative.

One week later two other panchromatic films, again quite different in characteristic, were introduced. One of them known as Background X, represented a modified background negative type. This film has about twice the speed of regular Background negative, or approximately 75 per cent of the speed of Super X.

For Exteriors Generally

It has less contrast than the Background Negative, and approximately the same grain characteristics. It is felt that this emulsion will be adopted generally as an exterior film for general motion picture work.

The other film, known as Eastman Super XX, is an emulsion of extremely high speed, and with a grain characteristic comparable to the Eastman Super X Negative.

This Super XX film has a speed four times that of Super X Negative, and from the standpoint of its speed this

Background X Negatives. Since the Background X is of inherently lower contrast than the Background, longer times of development were necessary to produce the same gamma.

In practice Background Negative is used at a gamma of approximately 0.80, and it will be observed by study of the time-gamma curves in Figure 7 that this gamma is reached under the condition of these tests in 6 minutes for the Background Negative, and 10 minutes for the Background X.

Again it should be brought out that these times are relative and apply only to these tests. The relationship between these emulsions, therefore, may vary somewhat for other developer formulas and machine conditions.

B. Speed

With the accepted Hurter and Driffield method of sensitometric analysis, which has been described in previous publications, it is relatively simple to compute speed values for various photographic emulsions.

The speed of a photographic emulsion depends upon several factors which involve the type of developing solution, type of developing machine, and the degree of agitation during development in that machine. Therefore, for a group of emulsions under test these various factors must be kept constant. It is then possible to make mathematical computations of speed which can be expressed in a definite ratio.

By applying the Hurter and Driffield procedure definite speed values have been determined for the new negative emulsions, as well as for Background and Super X negatives. The following table gives the ratio of speeds between these various emulsions with Super X negative expressed as 100.

Films	Relative Speeds
Background Negative	35
Background X	75
Super X	100
Plus X	200
Super XX	400

Considerable interest has been shown in very recent years on the estimation of speed by photo-electric exposure meters which are now available on the market. The most outstanding of these meters are the Weston and General Electric exposure meters.

There is relatively little difference in the final results obtained with these two meters provided the meters themselves are in good condition and the user applies some intelligence to his attempts to use them.

Numerous tests have been made, and it is felt that the values presented in the following table for both daylight and tungsten exposure conditions apply equally well to the Weston and General Electric meters.

Films	Daylight	Tungsten
Background Negative	12	8
Background X	24	16
Super X	32	20
Plus X	64	40
Super XX	128	80

Again it must be borne in mind that these values cannot be rigidly applied, but must be used with an element of common sense.

C. Color Sensitivity

From the standpoint of color sensitivity these three new Eastman films are fully panchromatic and while differing slightly from Super X Negative in that there is somewhat higher green speed, they are insufficiently different to cause a realignment in the filter factors for the various common filters used in cinematography.

Figure 8 shows the wedge spectograms of the three new emulsions together with Background and Super X. The following table gives the filter factors for those filters most commonly used in mution picture practice.

	Filters					
Film	Aero 1	Aero 2	3N5	5N5	G	23A
Background X	1 2	1 5	1	5	1	1
Plus X						
Super XX						

D. Graininess

Graininess differences between two emulsions are often expressed on a quality basis, that is, one exhibits more or less graininess than another in the case of two films being compared. Technically these differences can be shown by photomicrograms made from uniform areas of silver deposit of the same density developed to the same gamma.

These photomicrograms presented in Figure 9 show the structure of the graininess. Generally, however, the relationship between the graininess of any two emulsions as revealed by the photomicrograms is evident in the practical tests as examined on the screen.

It is interesting to note that actual production and experimental tests on the various films showed that the order of graininess as revealed by the photomicrograms is evident in the picture tests.

In the order of relative graininess these various films may be classified as follows: Background Negative, Background X, Plus X, Super X and Super XX.

A word of explanation is necessary here because one would expect that the grain size gradually increased from the Background to the Super XX. Tests show quite conclusively that there is relatively little, if any, difference between the Background and the Background X.

The Plus X shows slightly more graininess than the Background Negatives, but is definitely less than that revealed by Super X.

On the other hand, there is a just perceptible difference between Super X and Super XX with the Super XX showing slightly more graininess. However, picture tests on the screen have to be examined with extreme care to detect this difference.

As a result there are but three degrees of graininess presented by these five films. The *very fine* grain structure being represented by the Background and the Background X; the *fine* grain structure by the Plus X, and the *normal* grain structure by the Super X and Super XX.

E. Development

It was pointed out briefly when discussing the sensitometric characteristics of these various emulsions that development can play an important role in the estimation of the value of a negative emulsion.

It was shown by the sensitometric curves that Super X and Plus X have very nearly identical characteristics in this respect. The Background X shows an improved characteristic over the Background Negative in that the Background X requires slightly longer developing time. The only departure from normal developing procedure is shown by the Super XX film.

When it is realized that the Super XX is an emulsion of four times the speed of Super X it is not surprising in view of current manufacturing knowledge that this emulsion with its high speed should require longer than normal developing time when based upon Super X Negative as a standard. An increase in developing time of approximately 50 per cent will take care of the Super XX film.

F. Fog

It has often been the rule rather than the exception that the faster, or more sensitive, an emulsion is the greater the tendency toward increased development fog. It is extremely interesting to note in the case of these three new films that when compared with the current films they all show less tendency to produce chemical fog upon development.

RECOMMENDATIONS

This simultaneous introduction of three new negative films by the Eastman Kodak Company marks the first time in the history of emulsion manufacture when so many, and such different, negative materials were introduced to the motion picture trade at one time.

These three new films are markedly different from any existing products manufactured by the Eastman Kodak Company. It is, therefore, quite in order to offer some recommendations as to the uses to which these films may be put and to give an indication of the field in motion picture practice to which they are applicable.

1. Background X

While this emulsion carries the same general name as Background film which is now in use it is not necessarily intended that this film completely replace Background Negative.

However, since there is practically no difference in the graininess characteristics of these two emulsions it is probable that in many instances Background X will be used in place of the regular Background Negative. The most outstanding reason for this is its lower contrast characteristic.

The fact that Background X is a faster emulsion than regular Background Neg-

(Continued on Page 525)

LAB CHIEFS DISAGREE WITH CAMERAMEN

Michael S. Leshing

By Michael S. Leshing

Twentieth Century-Fox Laboratory

Editor AMERICAN CINEMATOGRAPHER.

With great interest I read in the November issue of American Cinematographer "What is Wrong With Present Day Cinematography?" As it is correctly stated in that article, the subject discussed is of a vital importance to everyone of us

Far be it from me to start an argument with present day cinematographers, but I, for one, will not agree with them that cinematographer's work of ten years ago is in any way comparable with the work of today Sure enough, as at every beginning, every step forward a few years ago was a big step You do not discover Americas very often

A magnificent brook in the memory of your childhood days becomes a very muddy creek when you look at it in later years Nevertheless, the question "What becomes of speed?" is here.

The laboratory that I have the privilege of supervising is not a commercial laboratory and was never pressed upon by the powers that be to cut down expenses Still the fact remains that the film speed which is lost everywhere else is also lost in our laboratory Where is it?

Some of the modern laboratories rely on a test system; others and ours rely exclusively on the gamma method of development In other words, we strive to keep the contrast and the density of the negatives from day to day on an even keel, by certain very exact, definite measurements

This does not exclude the fact we always ask the cinematographers whenever they are questioning the result, to make a test After developing the test we handle their particular exposure accordingly. In other words, modern laboratories do not *exclude the possibility of experimenting* by the cinematographers

I am quite sure that all of the modern laboratories carry records for the last few years, which, day in and day out, can tell the cinematographer under what exact conditions his particular film was developed

I am certain that other laboratories went through the same experience as mine, where from the moment we quit using Type 2 Panchromatic Film up until today (and this is still before we are ready to plunge into a new very fine but much faster film produced by Eastman Kodak Company) we changed, on four different occasions, our printing room set-up

Today we are printing (we are using Bell & Howell printers with 22 light divisions) several printer points higher than we did during the usage of Type 2.

The movement toward measurement of the total amount of light on a set will help to find the answer "Who is to blame for the loss of speed of film?" and I do most emphatically state I am personally not interested in the fact "who is to blame" *but what should we do* to stop the wasteful practice of not taking advantage of the increased speed of films and improvement of lenses.

I am not in a position to discuss other parts of the article "What is Wrong with Cinematography?" but I do hope that discussions on the subject "Where does the speed of film go?" do not die with one or two articles in the Cinematographer.

The cinematographer, the laboratories, the film manufacturers and last, but not least, the producers are vitally interested in the improvements of the lenses and of film stock

October 31, 1938

▼

By John Nickolaus

MGM Laboratory

Editor AMERICAN CINEMATOGRAPHER

I HAVE just read your article in the November issue of American Cinematographer under the title "What's Wrong with Cinematography?"

Ordinarily I refrain from complaining about criticism, but rather enjoy it and try and profit by the criticism, provided it is constructive, but since this article is anything but constructive, I cannot help but ask WHO IS BUILDING WHAT FENCE?

It is a well known fact throughout the motion picture world that the greatest advancement made in motion picture photography in recent years has been in the manufacture of raw stock and laboratory operation and processing, and you can imagine my surprise when I read this article to find that the assembled cameramen at this particular meeting who have been profiting most by this advancement were not aware of that fact.

You say "What is wrong?" Since you have better raw stock, faster and better lenses, better cameras and the laboratory is certainly processing your film more scientifically than ten years ago, still you feel that the work has not progressed proportionately. That may be true in some pictures, but is not true in our better pictures

Statement Ridiculous

That statement, as you put it, is ridiculous, and I am sure most of your members know it to be so If they do not, all I advise them to do is to take the best picture made ten years ago and look at it now, and then take the picture which this writer thinks is the greatest piece of motion picture photography in all time, which was made quite recently, namely "Marie Antoinette," and then honestly ask themselves whether or not cinematography has not kept abreast of all modern advancement in our art

Do not misunderstand, I merely suggest "Marie Antoinette" because in my opinion it is the outstanding picture, photographically, of modern times, but there have been many other very good

pictures made recently by your members which also will stand the test against the best picture you can find made ten years ago

With reference to your statement about Mr. Seitz's picture "The Four Horsemen," I agree that at that time it was the greatest picture, photographically, ever made, but it would be a very good idea for some of your idealistic members to run that picture and refresh their memory as to what photography at that time looked like compared with today.

Now might I ask, why publish such ridiculous articles when what I have just said is a known fact to all your members?

Asks Information

I am sure your technical editor did not read this article before it was published, because it was my pleasure and privilege to have worked with him on all recent film and laboratory developments, and certainly he understands the facts to be other than as published

I will briefly touch over another paragraph on the so-called tests that some of your members have made with miniature cameras alongside moving picture cameras, and as near as I can get from your article some of the film was processed in a regular laboratory and the rest was processed by amateur finishers, using the fine grain method, and that the amateur finish showed an improvement in exposure values. Will you kindly tell me in your next article what that means?

Then you go further to say it is held that the application of fine grain miniature camera methods to motion picture processing would open up an important new field for photographic advancement. When you say "it was held," what do you mean? By whom? And was your technical editor in on that part of your discussion?

You also say that the technical representatives of the raw stock firms on the other hand pointed out that there were commercial difficulties in the way of adopting such methods. I doubt that any technical representative of raw stock companies would make such a statement. I am sure they could tell you why, photographically, it cannot be done

As to Developing Time

Your next paragraph comparing the time of development as now used in most modern laboratories against the fine grain development is also ridiculous, and I am sure that the photographic world would love to get acquainted with one of these tests your members have made, which shows a reduction in grain and increased film speed. It certainly would be a great advancement to our business. I think you should refer that to your technical editor.

Now that we have passed that part of the article that solves the problem as to what is wrong with the laboratory and the film, we find ourselves on Page 457 with a true confession, that apparently nothing is wrong with a good cinematographer at all

Times have changed, production has been speeded up, the cameras are continuously moving, the advent of sound, so that your article finally winds up with one statement with which I certainly can agree, that in view of all these conditions, as one member summarizes things, is it not more logical to wonder why cinematographers today do as well as they do?

I trust you will accept this letter in the spirit in which it is written, namely to be of help for real, honest advancement in the art of cinematography, but I still wonder why this article was published.

November 19, 1938.

▼

CHARLES A. DANA, who in his long life was conceded to be one of the great editors of the English-speaking world, declared on one occasion in response to an irate reader who criticised him for printing a story which his correspondent insisted was offensive to good taste besides being untrue or something

"Whatever God Almighty permits to happen is good enough for The New York Sun to print."

In the story "What's Wrong with Cinematography?" in the November issue The American Cinematographer sought only to record a fact or series of facts—to restate for the benefit of its readers what was uttered on the occasion in question

While its editor did not personally write the story complained of he was present at the meeting, knew it was a reasonably faithful record of what occurred, and therefore, in the language of Charles A. Dana, God Almighty had permitted it to happen

He believed then it was news. Now he knows it was

The editor yields to no man in the sum of his respect, his profound respect, for the ability and the character of the technical editor of this magazine

Mr. Nickolaus errs in his assumption that the present instance was one in which the editor might have imposed upon the time and good nature of the technical editor for a consultation regarding the report of the meeting.

What had been done was water under the bridge. No human agency could return it to its source

If a member of the A.S.C. as a result of twenty years or more around a camera declares that so and so is the case the editor will defend that member's right to a day in court, to have his say, just as he will defend the right of Mr. Nickolaus to insist the statement is ridiculous, as he does employ that expression several times; the right of our mellow and candid but never caustic or choleric correspondent to say his say without the alteration of a letter.

We welcome the letter of Mr. Nickolaus as we did that of Mr. Leshing. The gate is wide open and no studio cop stands by. The forum invites.—ED

Eastman Issues Professional Kodachrome Film Up to 8 by 10 Inches

PROFESSIONAL Kodachrome Film is now available in a type accurately balanced for daylight use in a number of popular sizes up to and including 8 by 10 inches

Identical in faithfulness of color reproduction with the professional kodachrome film, Type B, recently announced for studio use, the new professional kodachrome film, daylight type, extends the advatnages of Kodachrome in large sizes to the professional and commercial photographer who wishes to make direct color photographs out of doors

Professional Kudachrome Film can be used in ordinary cut film holders and may, therefore, be used in any camera accepting such holders. Any good anastigmat lens properly corrected for transverse and axial chromatic aberration—briefly, any lens which gives critically sharp definition everywhere in the field for panchromatic film—may be used satisfactorily

When professional kodachrome film, daylight type, is used in sunlight or light of equivalent color temperature, no filter is required. Full color transparencies are taken with a single brief exposure

For this film, a Weston rating of 5 is recommended, and the average exposure in sunlight for an average subject is 1/25 second at f 6.3

While the color balance of professional kodachrome film, daylight type, is adjusted to produce correct rendering with average noon sunlight, without a filter, certain filters may be employed to compensate for variations in daylight color with different conditions of weather or subject

Need for compensation may arise, for example, when a subject is photographed in open shade, the sky then providing the chief illumination, at a color temperature higher than that of direct sunlight

Sizes in which professional kodachrome film, daylight type, is now available are 2¼ by 3¼ inches, 6.5 by 9 cm., 9 by 12 cm., 3¼ by 4¼ inches, 4 by 5 inches, 5 by 7 inches and 8 by 10 inches.

FILMING JUNGLE DJUKAS

By Clyde De Vinna, A.S.C.

Clyde De Vinna, A.S.C., at the Djuka head village in the Dutch Guiana jungles, where natives for a scene that later was duplicated by MGM at its studios for "Too Hot to Handle." At extreme left is Director Richard Rosson.

WHEN studio officials told me I was to go to South America to film a little known tribe of negroes for M-G-M's "Too Hot to Handle," I was amazed. Not at being sent thousands of miles on a few hours' notice—I've had too many globe trotting assignments to be surprised at another—but at the idea of finding virtually wild Africans in the New World. Indians—yes! Gauchos—yes! But certainly not African tribesmen in South America!

But the fact of the matter is that I *did* go down to Dutch Guiana and film a tribe of Africans as primitive as anything I met in Africa itself. They are known as the Djukas, and they are genuine Africans, transplated, customs and all, from the land of "Trader Horn."

For pictorial effects and sensational customs, they really outdo any of their cousins in the dark continent. In fact, some of their tribal ceremonies outdo anything I've seen or filmed in any part of the world.

But more of that later.

Our trip really began in Panama, where we chartered a plane in which we flew to Parimaribo, Dutch Guiana. This we discovered to be a fairly modern little city with a polyglot population composed of a relatively small proportion of Dutchmen and an incredibly mixed conglomeration of Javanese, Ceylonese, Chinese and Hindus. Like so many of the other distant cities I've visited they are ardent moviegoers.

Juliet Still Strong

When we landed, the current favorite was "Romeo and Juliet," which was playing its fifteenth or sixteenth return engagement, literally by popular demand. Among other favorites which had been shown and re-shown were "Trader Horn" and "White Shadows of the South Seas"—which made it very pleasant for me as soon as it was learned I had filmed both of them.

Director Richard Rosson and I learned soon enough that the Djukas were a very real people. They are, so the officials told us, literally transplanted Africans, the descendants of runaway slaves from the great sugar plantations which, three-quarters of a century ago, were worked by negro slaves.

Later, with the abolition of slavery, many of the freed slaves joined their runaway fellows and set up what to all intents and purposes is a miniature African tribal world among the Surinam jungles. In almost every way they have reverted to old native ways of living.

They are, oddly enough, the most independent tribesmen I have ever encountered. Though they occasionally put in a few weeks' work for the white man, to avail themselves of such civilized products as readymade rope, knives and gaudy clothes, they are quite independent of the white civilization. In fact, they feel themselves rather superior to it.

Thus while purely official contacts were, as always, helpful in our work, they could do little to open the doors of the Djuka village to us. For that we had to rely upon white civilians who enjoyed the confidence of the negro headmen.

Tribesmen Helpful

When this was gained we found the tribesmen cooperative, indeed. Unlike so many primitive tribes, they knew what movies and cameras meant, and had no objection to being photographed.

On the other hand, they weren't at all sure they liked to have us make records of their tribal songs and chants. Douglas Shearer, A. S. C., head of M-G-M's sound department, had provided us with a portable recorder with which to make disc records of these sounds, for use in the picture. Our first few records were highly successful for we played them back to a delighted audience of tribesmen.

But the weather was what one might expect in a land only a few degrees from the Equator, and there came a time when we dared not play back our wax discs, which were softening dangerously under the heat. Then the black musicians went on strike! "If you take our music away," they protested, "we won't be able to sing any more. Play it for us or we won't do any more for you!" Doug still thinks I double-crossed him, playing back those soft wax discs!

Getting to our location was a study in contrasts. Making the journey from Parimaribo by boat and cart—the usual manner—was a hard half-day's journey. We did it by plane in a dozen minutes. Dropping into this most primitive of villages in one of America's most modern aircraft always seemed an amazing contradiction.

Rain Each Day

Incidentally, the plane, more than anything else, impressed the natives. They clustered round it when it was moored in the river, examining it, touching its wings as awe-stricken as we would be over a space ship dropped in from Mars.

As a matter of courtesy, we took the head man of the village for a short flight, all through it he clung to his seat in terror. I never saw a man more delighted to return both feet to firm ground!

Despite the tropical weather conditions, we found things ideal for filming. That is, for tropical filming, for of course we had always to be on guard against the combination of heat and moisture, with its everpresent danger of mildewed film and clothing.

During the six weeks we spent in Guiana, it rained at least once every day. But between showers we were blessed with clear skies and gorgeous clouds to gladden the heart of any photographer.

We had to use the usual number of location makeshifts. Most spectacular, perhaps, was our arboreal camera parallel. Needing several shots from really high viewpoints, we adapted a tree to our purposes. Even in the Surinam

(Continued on Page 501)

HOWARD GREENE AWARDED PHOTOGRAPHIC HONORS FOR OCTOBER

PHOTOGRAPHIC honors for October at the hands of the Hollywood Reporter poll fall to W. Howard Greene, A.S.C., for Paramount's "Men with Wings." It was in Technicolor, as the name of the cinematographer implies. It may here be remarked that "Duke" Greene has been with Technicolor since 1917, with the exception of one period. That was the World War, but the affiliation was resumed at the close of that conflict and has continued without interruption.

The photographer's first picture in color was in Florida in 1917, "The Gulf Between," with Grace Darmond and Niles Welch in the leads. It was a Technicolor subject, too, and the first of a long line.

Dr. Herbert T. Kalmus, president of the company, told the delegates to the recent convention of the Society of Motion Picture Engineers in Detroit about the making of that subject. On it was employed the company's first laboratory—in a railway car, to be exact, and very likely the first motion picture laboratory ever created to run on wheels on railway tracks.

A Lot for 1917

This lab did just that. It was moved from Boston to Jacksonville. The equipment was as complete as it was possible to make it. There were darkrooms, fireproof safes, power plant, offices and all the machinery and apparatus necessary for continuously carrying on the following processes on a small commercial scale:

Sensitizing, testing, perforating, developing, washing, fixing and drying negative, printing, developing, washing, fixing and drying positive; washing and conditioning air, filtering and cooling wash water, examining and splicing film and making control measurements and tests.

One of the notable characteristics of the picture business—and the amusement industry generally, for that matter—is total unconcern as to what was the first picture you made. Rather it is: Just what are some of your recent pictures?

Facing an interrogation of that sort Duke Greene would have to reply something like this: "Garden of Allah," "A Star Is Born," "Trail of the Lonesome Pine," "Nothing Sacred," "Robin Hood," "Men with Wings" and "Jesse James." Yes, and the color sequence in MGM's "Ice Follies."

Even if the last named be unreleased it is no breach of faith to suggest that when it reaches the screen we are going to see skating scenes that will be easy to look at. Basing that preceding remark on a squint at a couple four-frame film cutouts of the aforesaid scenes we can promise sequences that will be well worth walking a mile to see.

Has Traveled Much

Not all of Duke Green's experience has been in color film. There was some work in black and white before transferring to color, but since that time except for a few tests there has been little doing that was not in color.

In the course of the last two decades the cameraman has traveled a bit about the world. In 1920 he went to Rome to photograph the color sequences of "The Four Horsemen," from the story the industry damned as absolutely untranslatable to the screen—and then instead of proving a flop became one of the screen's great moneymakers.

Proved Moneymaker

The picture made so much money that because of it Marcus Loew changed his mind about quitting all production interests and sticking solely to exhibition. Incidentally Loew remained in the production business until his death.

Then there was a trip to Bali with Henri De Falaise making "Legong"; to the West Indies for an underwater picture for MGM, "The Unmvited Guest"—another trip to the South to make "The Mysterious Island," but a hurricane interrupted and the finish was not, and another trip with De Falaise to Indo China in "Cleo."

While he concedes life is much smoother for the cameraman who shoots

W. Howard Greene

interiors Duke Greene confides a fondness for exteriors—with their great possibilities especially in color for scenic splendor. To have access to these it is worth fighting the elements and all the ramifications that flow from them when they really start to jam up a camera crew.

The honors to Greene were contested by partisans for the "Suez" of Peverell Marley, A.S.C., a Twentieth Century-Fox subject, which was given second rating photographically, and for the "Sisters" of Tony Gaudio, a Warner Brothers' picture.

The picture declared the best production, MGM's British made "Citadel," was photographed by Harry Stradling, A.S.C.

Process Raises Its Stock Capitalization to $300,000

As of November 10, 1938, permission was granted by the secretary of state of California on application made by the directors and stockholders, John Gentile, president; Mario Castegnaro, vice-president and treasurer, and Mrs. Bertha Castegnaro, secretary, of the Motion Pictures Process Corporation to increase its capitalization from $25,000 to $300,000.

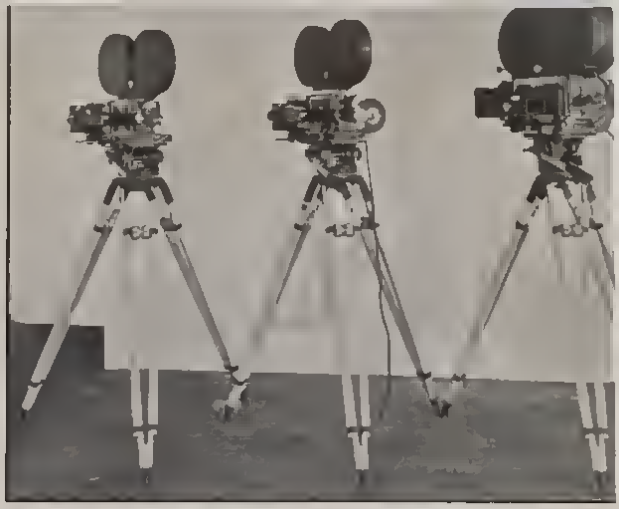
At the regular October meeting the board of directors decided that the activities of the corporation be extended in view of its splendid results since the beginning of its operation July 1, 1938. The approval was also given for an extensive campaign to fully develop the commercial department.

"Bumper" for Spectacles

The Filmo 141 movie camera recently announced by Bell & Howell has a spyglass type viewfinder provided with a special soft-rubber "bumper" which prevents spectacles from coming in contact with the harder camera material.

MITCHELL CAMERA NEARS MAJORITY

By IRA B. HOKE



Standard Model Sound Model Studio Model
Three examples of the Mitchell Camera of today

NINETEEN years ago in an unpretentious machine shop on Santa Monica boulevard, in the heart of the motion picture world, there came quietly into being a small machine built by a master mechanic that was destined to revolutionize the art of moving picture photography around the world

It was called the Mitchell camera after its builder, George A. Mitchell, who perfected plans from the original patents of John E Leonard The germ of the idea that was to change the entire field of cinema photography was in itself simple, as are all truly great ideas.

Up to the advent of the Mitchell camera a serious problem always had confronted designers and cameramen; that of being able to focus the image on ground glass behind the photographing lens

Various methods were in use, many of which involved the fogging of one or two feet of film stock each time a ground glass was inserted in place of the film pressure gate

The Leonard idea was to move by rack and pinion the entire film movement, camera, and magazine in one unit far enough to the right of the lens to bring into position a magnifying eyepiece which carried within itself a ground glass which fitted exactly the photographing aperture and focal plane

Thus, with a simple twist of the wrist, the lens could be focused either upon ground glass or film, no time was lost, and no film wasted

Four More Changes

Other less vital but nevertheless important structural changes were also embodied in the new camera Briefly these were:

A set of four-way matts built into the lens supporting frame and operated from the outside by control buttons

An internal iris behind the lens, full floating in such a manner that it could be brought into position anywhere on the aperture

A large turret disc in which eight filters or special matts could be inserted and brought into position behind the lens instantly

An entirely unique tripod that might be adjusted for height, in trombone fashion by one hand, and locked in position by large knurled knobs

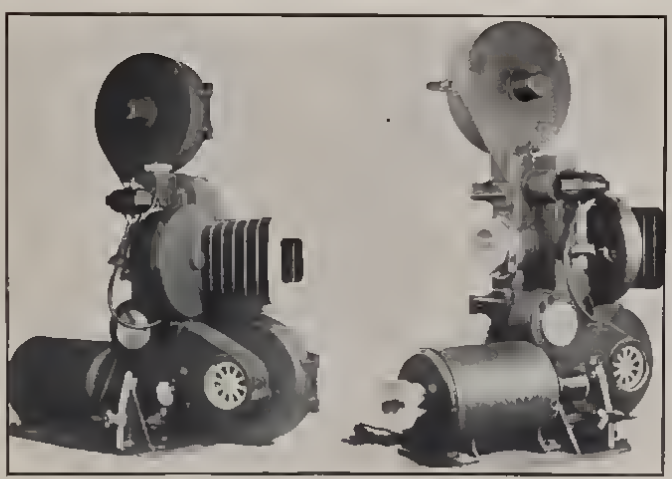
The camera won instant recognition from cinematographers and film producers in Hollywood Within an astonishingly short time its fame had become worldwide, and increased production demands necessitated a more completely equipped factory Today there is no country in which the Mitchell camera is a stranger to those who make moving pictures, either in the commercial or dramatic field

Improvements in design were made constantly to keep pace with the changing requirements of the industry First among these radical improvements was the construction of a high speed film movement and registering mechanism This operated with cams, had four pull-down fingers and two register pins It was capable of handling film at all speeds from 1 picture to 128 pictures a second

Redesign Standard

This movement when incorporated in the "Standard" Model made not only an ideal means of photographing slow motion scenes but when operated at normal speed caused the camera to run with astonishing silence

So it was that when in 1927 the major studios of Hollywood suddenly became



Two views of Mitchell Background Projector

talking picture conscious, the Mitchell camera was then first thought in quiet operation The speed movement, while a major step, was not by any means a solution of the problem

The first move made was to redesign the Standard Model, eliminating ball bearings in favor of the oilless or sleeve type. Each alternate gear was then changed to bakelite The resulting camera, while far more silent than its predecessor, left much to be desired as in most sound scenes on closed stages a blimp was necessary to deaden motor hum and magazine noise

It was, however, a step forward, as it eliminated the necessity for clumsy, unhealthy camera booths, which in the early days of sound inclosed not only the camera but the operator as well

Encouraged, the company set the entire engineering department of its big new plant in West Hollywood, where increased expansion had made necessary a move of quarters in June, 1929, upon the problem of a still more silent camera.

Studio Model Mitchell Camera showing (left) single lens and (right) from operator's position.

In 1932 was introduced the Sound Model Mitchell It was a success from the first, and to date there have been sold nearly 150 instruments. Similar in outward appearance to the Standard Model, it employs a different method of drive and a revolutionary film movement, which latter employs eccentrics in place of cams

Positive Register

The pull-down arm has two fingers on each side, thus engaging four perforations simultaneously The pull-down fingers and the register pins overlap, one entering before the other disengages It is swift, silent, and assures positive register.

The drive is direct to the movement, which in turn drives the shutter shaft through helical gears The shutter shaft is used to drive, by means of a silent worm gear, the sprocket and magazine take-up The various moving parts of the camera are thus operated with a fewer number of gears, and the noise reduced to an astonishing minimum

Incorporated in the camera is the Mitchell "buckle trip" which automatically stops the motor in case of a buckle or faulty magazine take-up

A special door is furnished with the camera which allows the variable speed Mitchell motor to be used on "wild" shots, but for studio or sound use the interlocking type or synchronous motor is mounted in a sound-proof housing which fits directly on the right side of the camera.

For the usual scene this model is sufficiently silent to warrant its use without added covering, but on close-ups in closed sound stages it is found necessary to use lightweight blimps, not to eliminate camera noise, but to overcome the ground hum of motor and accessories

With the elimination of these fine points of unnecessary noise in view, the engineering department continued its

(Continued on Page 522)

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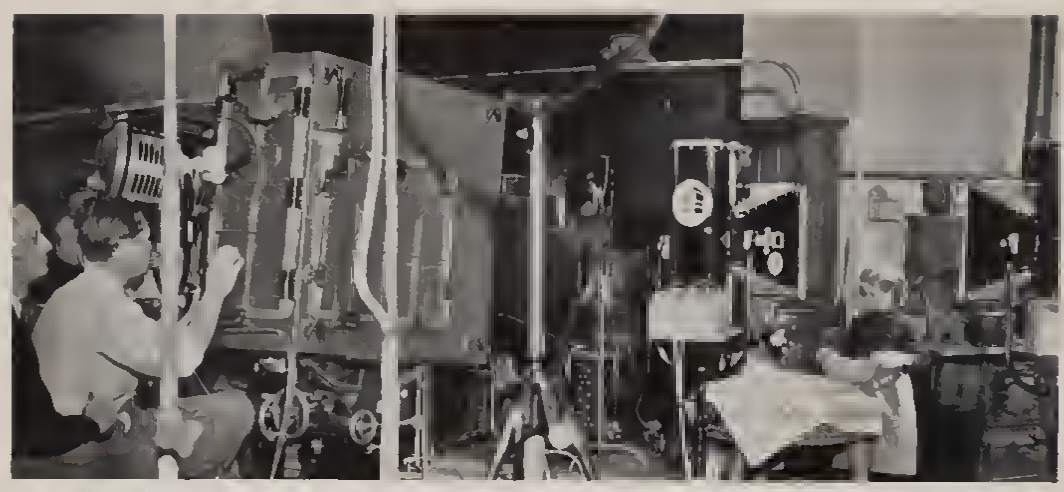

Shirley Temple in her first Technicolor picture, 20th Century-Fox's "The Little Princess," lighted by B-M's twin Broad Arthur Miller, A.S.C., directing photography as he always does in Shirley's pictures

SHIRLEY'S FIRST COLOR LIGHTED BY B-M's TWIN BROADS

By WILSON HELLER

I WONDER if you can name the "seven mules" who were so instrumental in making the immortal "Four Horsemen of Notre Dame" the greatest football team of modern times?

Of course you can't, but you do recall that the backfield was composed of Miller, Layden, Stuhldreher and Crowley, for they are the boys whose names made the headlines back in 1924. They were the front men for the team-ball packers and backfield blockers. Yet their names would have been mud if the seven mules in front of them had not opened up the holes through which their offense galloped.

Football may be a long cry from motion pictures, but a somewhat similar situation is true in every studio in the world. Men and women who actually appear on the screen are hailed for their accomplishments, as are the writers and directors, but little is heard of the technicians who figuratively are the "seven mules" of production, who make the holes through which the stars are poured to glory.

No industry in our annals has made the rapid strides recorded by the films. Only a few years ago an industry with little or no standing, an unaccepted art, pictures today stand as the foremost of all amusements.

Certainly the glamorous figures who catch public fancy and bring people into the box office deserve all the credit they can get. Yet technicians who handle the cameras, the sound equipment and who produce the lights that bring out the best in the glamorous ones' looks are also deserving of a full measure of credit as well.

Shirley in Color

Color experts have done wonders for pictures in the last two years. Technicolor, for example, has progressed to a point where more color pictures than ever before are now being filmed by leading studios. Twentieth Century-Fox, for instance, has just produced three of its greatest products of the season in Technicolor, "Jesse James," "Kentucky" and "The Little Princess," the latter Shirley Temple's first appearance in a color picture.

Walter Lang directed this production, with Arthur Miller, A.S.C., in charge of the camera and E. Clayton Ward handling the sound.

Technicolor has met and overcome some ticklish obstacles, but one of the biggest steps forward was made in this

(Continued on Page 524)

KALMUS TELLS DRAMATIC STORY OF TECHNICOLOR

AT THE convention of the Society of Motion Picture Engineers in Detroit early in November Dr Herbert T Kalmus, president of Technicolor, in a formal address told of the inception and development of that company It was a dramatic recital of a really great achievement Less than that it cannot be when one group succeeds in a field where all predecessors had failed

The address as prepared consists of about ten thousand words It is a contribution of major importance to the record of the motion picture industry Incidentally there is a suggestion the paper may be a fitting preliminary to a more ambitious document the Doctor has been asked to prepare, reviewing the progress of color cinematography over the past quarter of a century, with special reference to the contributions of Technicolor

Inasmuch as Doctor Kalmus has been a part of Technicolor since its beginning he is the one person to undertake that task

The first picture to be photographed in Technicolor was produced in Florida twenty one years ago, in 1917. In 1937 the company shipped over 350 subjects including more than 20 features for some 50 different customers.

After two plants had been completed in Boston a company came to Hollywood in the spring of 1923 to establish a small laboratory and photographic unit in Hollywood In another year a small plant had been erected in North Cole avenue In the fall of the same year six men and four cameras were in Rome working on MGM's "Ben Hur"

In 1927 a series of Technicolor shorts, released by Metro, proved a hit and established the drawing power of color in films Doctor Kalmus makes a significant statement:

"In my opinion Technicolor would not have survived without the experience of this series of short subjects"

Warners Break Ice

To Warner Brothers the Doctor gives credit for being the first producers to make the plunge in color. In 1929 the company signed for more than twenty subjects One of these, "Gold Diggers of Broadway," has grossed over three and a half million and is claimed to rank as one of the first ten all-time outstanding attractions.

When the rush started to color Technicolor imposed a charge of $25,000 deposit on each producer booking a picture for future production At one time the company had on hand the sum of $1,600,000 in such cash payments, or an advance on 64 subjects

During the years 1929-30 Technicolor appropriated over three million dollars for plants, equipment and research As a result its plant capacity was increased to 6,000,000 feet of two-component prints a month At the peak of the rush Technicolor had 1200 men employed with a payroll approximately of a quarter million dollars a month

By May 1932 the company had completed its first three-component camera and one unit was equipped to handle three-color printing The advance in quality was marked, in accuracy of tone and color and in definition.

Then came the combination of Technicolor and Disney. Walt Disney was the first of the cartoon makers who took the chance of the added expenditure, the claim of the cartoon men generally being that such work was expensive enough in black and white "Santa's Work Shop" at Christmas 1932 established a vogue for colored cartoons. Then came "Three Little Pigs" the following May and early in 1934 "Big Bad Wolf"

Always Something Ahead

A favorite subject of conversation has been as to which was the more benefited of the combination the cartoon or the color Why not enjoy the combination we are privileged at times to follow —a result that easily will rank as top entertainment in any company or in any field of amusement

In the letter from Dr. Goldsmith, suggesting for himself and Mr Crabtree

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that Doctor Kalmus with the present paper, the former said

"I believe it would be of particular interest to the engineers and the industry if you cared to indicate how you happened to cling so tenaciously to these developments through the 'dark ages' when color motion pictures were not so well appreciated"

"All I have said points to the answer," responded the doctor. "It was marvelously interesting; it was great fun. We couldn't let anybody down, neither customers, employees, stockholders nor directors. But there was something else, too.

"There was always something just ahead, a plan for tomorrow, something exciting to be finished—yes, and something more to be finished after that, and I am willing to predict that it won't be finished for many years yet.

"The type of film which will be standard for natural color pictures ten years hence may not yet have emerged. I predict that within two years Technicolor will have done away with special cameras and be regularly employing single strips of negative through any standard motion picture camera, and that within two months for special purposes and within six months for more general purposes it will be offering to its customers a negative for use in its present cameras with from three to four times the speed of its present negative.

"That's why we cling so tenaciously, there's always something ahead; there always will be, our pride is enlisted. It's our job."

Alton's Photography Praised in B. A.

DOWN in Buenos Aires on the evening of October 5, citizens of that energetic municipality acclaimed Argentina Sono Film's "Madreselva" (Honeysuckle), the photography on which was directed by our own John Alton, A.S.C. One of the city's newspapers on the morning following described the production as "a victory for our motion picture industry."

Another declared the production to be "a great triumph for our national motion picture industry," and a third makes it unanimous when it says "'Madreselva' is a high exponent, a flag carrier, of the Argentine film industry."

The same three publications also give large credit to the photographic qualities of the picture. The first declares: "Finally with praise do we mention John Alton, to whose delicate sensitiveness we owe the exquisite beauty of the photography."

"The photography and lighting," says the second, "the remarkable merits of which constitute highlights of the picture, belong to John Alton."

"Director Amadori knew how to surround himself with useful elements," writes a third reviewer. "One of these is the marvelous photography of John Alton, A.S.C., who has placed his photographic knowledge and experience at his disposal. Have you ever seen Libertad Lamarque (the feminine star), Hugo del Carril and Malisa Zini so well cared for and so beautifully?"

Probably by the time the foregoing is printed Alton will be well on his way with another super for Argentina Sono Film, "Puertas Cerradas" (Closed Doors). The picture, like the one that preceded it, will star Libertad Lamarque, and will be the third subject the A.S.C. man has photographed on his present contract with Argentina Sono.

'Balancing Films' for Theaters Ready

The Research Council of the Academy of Motion Picture Arts and Sciences announces another forward step in its program. To help present a better show to the public, "Balancing Films," recorded in Hollywood studios especially for this purpose, are now available for all theatres desiring them.

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Filming Jungle Djukas

(continued from Page 498)

jungles, it was a giant—the trunk was fully 12 feet in diameter at the base, and heaven only knows how high, our highest camera platform was over 300 feet from the ground, with two other ones lower down. A couple of the natives, who had served some time as sailors, made it for us. Climbing the tree like a couple of overgrown monkeys, they hauled up ropes and boards, and lashed together a stout platform for the cameras.

To get a clear lane for our lenses, branches were lopped off—an incredibly difficult task when you realize most of the big trees there are either mahogany or ironwood, either of which is too dense to float in water and hard as metal!

For the same reason, we had very little opportunity to film anything on the ground unless it was in the cleared area by the village. Any other angles made it necessary to hew our way through a network of iron-hard branches and matted undergrowth.

Contradictory as it may seem, instead of using any of the usual fast films working in this jungle, we used the far slower background-type negative.

Since we had to fly everything to our location, "booster" lights were out of the question, and even reflectors were held to a minimum. In spite of it, our scenes were satisfactory.

Used Meter Steadily

In all of this, my Weston exposure meter came in for constant use. It was used, literally, on every shot. I'm glad I used the meter for the light was most deceptive. Even in the jungle, the light was far more actinic than could be expected, for the huge expanses of brilliant white clouds acted as perfect reflectors. The light was equal in intensity to normal desert conditions near Hollywood!

Some of our other scenes called for dolly shots. Naturally, traveling by plane, we could not have carried even one of the studio's smallest camera carriages with us. Instead, we improvised a substitute which I think is unique.

As is well known, the Dutch are great bicyclists. In Parimaribo we found more varieties of bikes than any of us had thought possible. One type appealed to me as the answer to our dolly problem. It was a delivery tricycle imported from Europe. I've never seen anything like it in this country. It had a regular bicycle rear wheel and pedaling arrangements, complete with a strong hand-brake.

In front, however, were two full-sized wheels mounted on an underslung frame, pivoted to the main frame for steering. All sorts of delivery bodies were mounted between these front wheels.

For our purpose, we had a flat, low-sided platform built. This was quite large enough to hold a camera on its tripod, and leave plenty of room for the camera operators. It worked beautifully dollying along the street of the Djuka village, even when—as usual—the morning rain had left the street a sea of soft mud.

I liked it so well I brought the thing home with me, and it is now a part of the M-G-M camera department equipment. I think it can prove useful not only on other locations, but even for some types of studio work.

Fire Dance Thrills

The biggest thrill of the trip came when the natives voluntarily staged their "Fire Dance" for us. I've seen some wild African dances, to say nothing of the "Fire Walkers" of the South Seas. But this beats them all.

We had heard of this dance, but as it was one of the tribe's most cherished religious ceremonies, we hesitated to ask them to put it on for us.

Then one day, while we were filming some lesser dances, they spontaneously broke into the fire dance! Did we hurry to put it on film—? What do you think?

In the South Seas, the fire-walkers, after much ceremonious application of sacred herbs and ceremonial chanting, walk across a bed of glowing coals. But the Djukas—without any preparation other than frenzied chants, not only walk through the fire, but throw themselves down into the fire and roll among the red-hot logs!

Furthermore, they fondle the blazing brands. They take the red-hot logs—logs five or six inches in diameter, grabbed from the heart of the fire—and clasp them under their bare armpits—rub them over their naked bodies.

Bite from Glowing Coals

Some even seize the glowing logs and bite huge chunks from them! Yet not one of the dancers showed so much as a blister—let alone a burn. How they do it is a mystery to me, as it has been to all of the few white men who have been privileged to see the dance.

Those of you who see the picture may have airily dismissed these scenes as being studio trickery—hokum—but they weren't. They were absolutely legitimate—authentic. Some of our writers, I admit, have fine imaginations. Our special effects cinematographers can—and do—make almost anything possible on the screen.

But my experience among the Djukas showed me that there are things no writer could imagine, and no trick-camera wizard could stage—in real life, if you will only look for them!

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A.S.C.'S OCTOBER PARTY PROVES RARE OCCASION

THERE was another of those rare evenings October 31 at the home of the American Society of Cinematographers on the occasion of the monthly get together. The chairman of the evening was James Wong Howe, A.S.C., and what could be more in keeping than the presentation by this son of China of the Chinese Cultural Mission from Shanghai.

The mission to the United States, numbering a dozen, is headed by Mrs. Ernest S. H. Tong, secretary-general, wife of Ernest Tong, counsellor of the Kwantung Government.

Mrs. Tong will be remembered by those who were privileged to be present as a young woman of unusual charm and grace, whose presence and attainments were matched by a beauty seemingly softened and heightened by the shadow of the great tragedies of which for more than a year she has been a part.

Mrs. Tong has been organizing this music-drama group since the beginning of the war, with the aid of two prominent American women stationed with their husbands in China and also of an imposing list of patrons representing not only China but France, Norway, Belgium, Portugal, Italy, Great Britain, International Red Cross, and through Roy Howard, the United States.

The mission will tour this country during coming months inspired by several motives—in the hope of creating in the United States a better understanding of Chinese arts and culture—and surely it will achieve that—and to contribute to China's war orphans through Madame Chiang Kai-shek all funds above self-imposed simple needs.

As stated by Edna Lee Booker, vice chairman, the result of the mission's work is a real contribution to the art world. The organization has revived the classical arts of a thousand and more years ago. It has adapted them, modernized them.

An outstanding feature of the entertainment is the music by the Classical Orchestra. The musicians, who are professors of the Ta-Tung National Musical Research Institute and the Shao Chao Institute of Classical Music, play on instruments such as once were used during the Confucian formalities and old Chinese court ceremonies centuries ago. Wei Chung-loh is the most famous P'i P'a player in China, while Doctor Sung Yue-tuh is a master of the Phoenix flute.

The three others in the orchestra beside the two just named are Ling Ya-yei, whose instrument is the yang chin; Wang Chen-toh, high erh-hu, and Hsu Si-sung, low erh-hu.

The members of the group not already mentioned are Miss Virginia Cheng, Miss Ethel Chun, Kwan Hung-ping, Wang Ven-piao, Hsu Kwan-nee and Chow Tse-ping.

The company was restricted in putting on its program by the limitations of the lounge—a stage really being necessary but it was a program inevitably impressing the listener as one which never before had been heard outside the bounds of China. This literally was true up to the entrance of the Cultural Mission into the United States.

If it be fair to suggest the outstanding performance of an unusual evening it might be that of Wei Chung-loh on his stringed P'i P'a in a solo written for that particular kind of instrument fourteen hundred years ago. It was one to remember. Well might the artist have been the original player and have spent the intervening centuries acquiring his uncanny mastery of the P'i P'a.

Hon Wu, a native of San Francisco, contributed materially to the evening's entertainment by songs and dramatic recitals. He is a finished artist with broad stage experience.

The Chinese Cultural Mission deserves well of America—for its great artistry and for the equally great patriotic purpose behind it—a purpose which at least subconsciously never is absent from the mind of the thoughtful auditor.

G. B.

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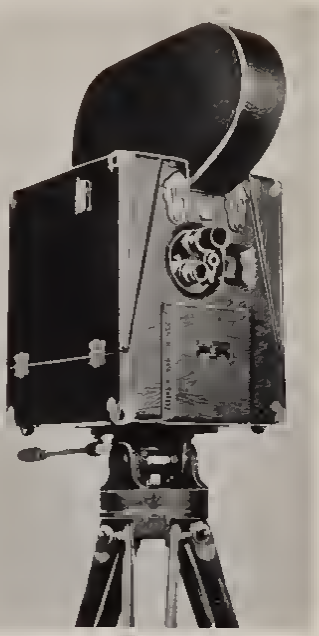
AMPRO SALES AGENTS FOR SYNCRO-SOUND 16mm. PRO

THE Ampro Corporation of Chicago, manufacturers of 16mm Silent and Sound motion picture projectors, have just completed arrangements as the exclusive United States sales agents (east of the Rocky Mountains) for the Synero-Sound 16mm. professional sound-on-film camera, as manufactured by Gumbiner Syncro-Sound, Inc., 3337 Wilshire boulevard, Los Angeles.

The Syncro-Sound camera is a precision, professional instrument that produces pictures and high quality natural sound It has a sprocketless sound drive —an exclusive feature, designed to insure flutterless recording A combination carrying case and blimp provides extreme ease of set-up and efficiency

It takes single system pictures on all types of film and can be synchronized with any camera for double system, or with any projector for recording narrative synchronous with a silent picture For location work a small, lightweight converter may be purchased that will operate the camera from a portable 32-volt battery. The tripod is light in weight yet rugged enough to support 150 pounds.

The equipment packs into three black fabrikoid cases with chromium trim Combined weight of all, 120 pounds The complete sound picture equipment consisting of camera, amplifier, tripod, two magazines, microphone, one picture lens, carrying cases, with all connecting cables, F O.B Los Angeles, $2975.



Syncro-Sound 16mm. professional camera to be distributed by Ampro

LIGHTING NEWS *Extra*

ON THE SET — EVERY DAY

DUARC TELLS ALL

JITTERBUG BROADS LOSE GROUND IN STUDIOS

Nobody likes a jittery broad!

Observers of trends and tendencies in Hollywood's studios point to this fact as basis for the present decline in favor of "jitterbug" arc broads. "Swing", "rug-cutting" and "jitterbuggery" may still be ace-high among the younger generation, but they are distinctly out of favor with Hollywood's lighting experts.

In circles where "in the groove" refers to a well-cut wax rather than a succession of "hot licks", and a "jitterbug" may signify a flickery lamp rather than an exponent of the "Suzy-Q", steadiness, rather than flashy performance is sought. This is particularly noticeable of twin-arc "broadside" lamps, commonly knows as "broads". A single flicker of a single lamp—unnoticed by the eye —may be picked up by the camera and made the occasion of budget-blasting retakes.

Displaced by Duarc

For this reason there exists an all sets where arc lighting is used an accelerating tendency to retire the earlier, jittery arc broads and to replace them with the flicker-free Duarc

An additional advantage in this policy is pointed out by the experts. Previous arcs have required considerable attention and frequent retrimming, on especial liability where the lamps are used as overhead "scoops" The longer-burning, dependable Duarc, used for this purpose, can operate without retrimming for half a day's shooting or longer. The more modern Duarc doubly speeds production

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CHAMPION TURN REVEALS INSIDE SECRETS OF DEFEAT OF ARC FLICKER

Hailed as the first broadside arc to defeat flicker, Duarc, Mole - Richardson's sensational champion, today broke a long silence to reveal inside facts of the amazing achievement.

"It is purely a matter of control," the champion stated. "Flicker has always been caused by starvation of the arc. A properly nourished arc—one in which the carbons are fed at precisely the rate they are consumed —cannot flicker. If the feed gets behind consumption—or ahead of it—even the best arc must flicker. If the feed is non-intermittent—jerky—there will be flicker. For satisfactory performance, the feed must be continuous, directly proportioned to carbon consumption.

Individual Control

"Where two arcs are operated together as in a twin-arc lamp, this means that each arc must be fed independently. The majority of conventional arcs planned for cheapness of manufacture have ignored this important fact. Feeding both arcs together, by a single mechanism which usually operates intermittently they cannot avoid an unproportioned feed—feeding one arc perhaps too fast for its needs, the other perhaps too soon Flicker inevitably results.

"The flickerless performance which has made Duarc the champion ran he credited largely to the fact that each of the twin arcs is fed individually, with the carbons feeding with a continuous movement governed directly by the rate at which they are consumed."

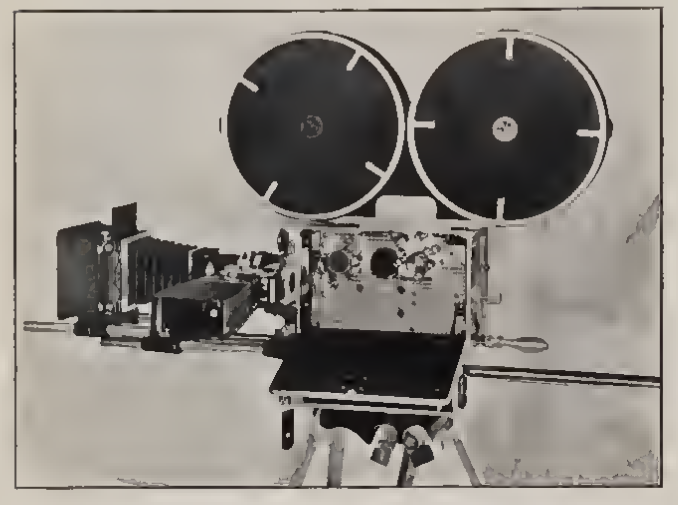
Rogers Moves East

F. B. Rogers has been appointed by Ampro sales organization, effective October 10, divisional sales manager with headquarters at the New York office, 56 West Forty-fifth street. Assisting Mr. Rogers is his son, F B. Rogers, Jr. Metropolitan New York will be handled intensively by Harry S. Millar.

Mr Rogers brings to his organization a wealth of knowledge and years of experience in all phases of merchandising connected with the 16mm motion picture industry.

In line with the growing demand for highly effective yet inexpensive photo-lamp reflectors, Wholesale Radio Service Company, 100 Sixth Avenue, New York, has introduced three Lafayette Fotolite Reflectors

DeVry 35 mm sound [illegible] (shown without sound lens). Note the [illegible] up to 2 by 3¾ inches. The [illegible] that it may be swung easily away from the film [illegible] without changing the parallax adjustment



Peach Signs with Process

Kenneth Peach, A.S.C., well known miniature and process director, will be connected with the Motion Pictures Process corporation's technical staff. During the past few years he has been with MGM, 20th Century-Fox and other producers

All-Metal Enlarging Easel

A new and fully adjustable enlarging easel of all-metal construction has been introduced by Wholesale Radio Service, 100 Sixth Avenue, New York. It permits enlargements up to 11 by 14 inches. Extra wide margin slides hold the paper perfectly flat and are maintained in accurate alignment by a secure locking device.

New B & H Lenses for 8mm.

Two lenses trade-named "Anpax" and "Telate" for Filmo 8mm cameras are announced by Bell & Howell in a new line: 12½mm. (½ inch) F 2.5 Anpax in focusing mount; 1½ inch F 3.5 Telate in focusing mount.

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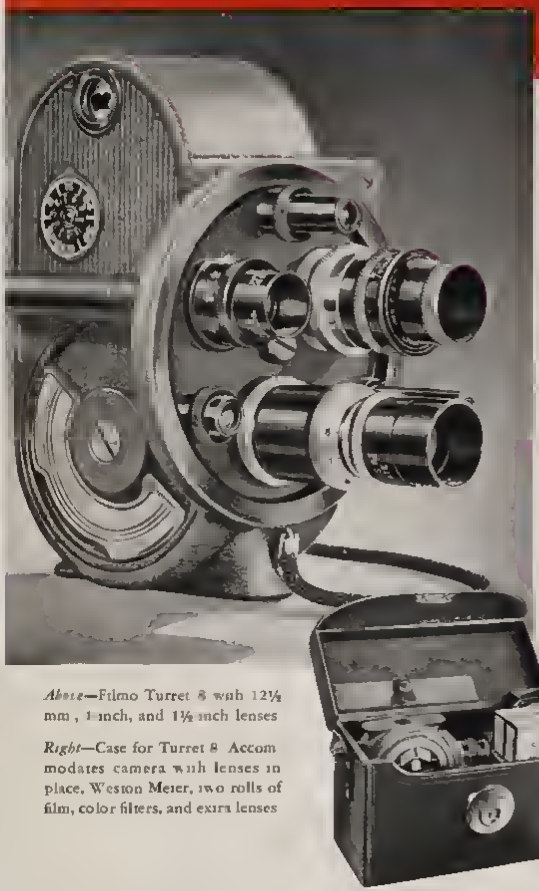
New! Filmo 8 with Turret Head!

Three lens turret Finder objectives on turret, too Critical focuser "Positive" finder with "Spectip" rubber cup for spectacle-wearers Four speeds, two speed ranges Single-frame exposures



Above—Filmo Turret 8 with 12½ mm., 1-inch, and 1½ inch lenses

Right—Case for Turret 8. Accommodates camera with lenses in place, Weston Meter, two rolls of film, color filters, and extra lenses

THE new Filmo Turret 8 now brings to 8 mm. movie-makers the complete readiness for all picture opportunities heretofore enjoyed only by users of 16 mm. and 35 mm. film. Study these features:

TURRET HEAD. Mounts your choice of three lenses. Shift lenses in a second by rotating the compact turret.

FINDERS MOVE WITH LENSES. Viewfinder objectives matching the lenses are also mounted on the turret head. When a lens is in photographing position, its matching finder objective is always in viewfinding position.

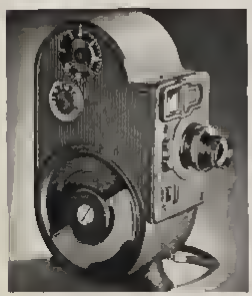
"POSITIVE" FINDER. Filmo Turret 8 uses the same fully enclosed "positive" type of finder as Filmo 141 . . . a finder which *always* shows exactly as much of the subject as will appear on the screen. You see a large, brilliant, sharply outlined image through each objective . . . no masking for telephoto lens fields. The removable "Spectip" rubber cup around the finder eyepiece protects spectacles, facilitates viewfinding for spectacle-wearers.

CRITICAL FOCUSER. Revolve the turret to place a lens before the focuser tube. See the *entire* field while you set the lens for needle-sharp focus.

In addition to these new features, the Filmo Turret 8 provides all the advantages of the finest non-turret Filmo 8, including four operating speeds, single-frame exposures, easy loading, rotary disc shutter, and accurate speed control. Send the coupon for full details.

Filmo Turret 8 with 12½ mm. F 2.5 lens, speeds 8, 16, 24, and 32	**$140.00**
Same, with speeds 16, 32, 48, and 64	**148.00**
Carrying Case for Filmo Turret 8	**12.50**

Four Filmo 8's



The Filmo Double 8's with single lens seat offer convenient small size and simplicity of use, combined with precision construction which insures the finest picture quality. Features include four film speeds and single-frame exposures, instant lens interchangeability, finder masks for telephoto lenses. Four models from which to choose.

Speeds	With F3.5 Lens	With F2.5 Lens
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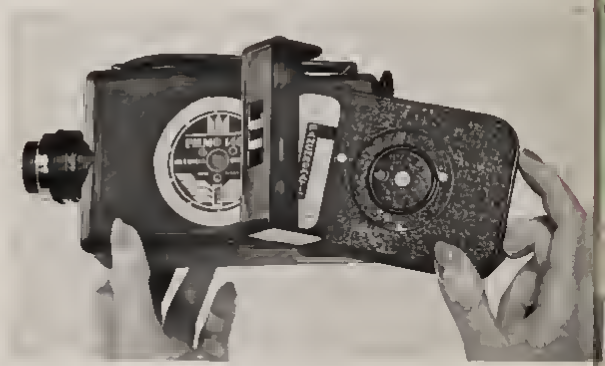
16, 32, 48, and 64	**56.50**	**80.00**



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Also available with F 1.9 or F 1.5 lens. Send coupon for details. Bell & Howell Company, Chicago, New York, Hollywood, London. *Est. 1907.*

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Will Name Contest Winners in January

ANNOUNCEMENT of winners in The American Cinematographer's international amateur contest for 1938 will be made in the January issue of this magazine.

Television Slowly, Surely...

By George Blaisdell

SUPPLEMENTING its annual reports of May 15 1936, and June 15, 1937, the Research Council of the Academy has issued a third under date of November 15 just past. Like its immediate predecessor, it is a paper of real interest even to a person only casually concerned about television It is a matter of regret its arrival was too late for us to give it the attention it deserved.

Primarily the report is designed for the information of studio production executives and others who may be interested in the possible future effects of television from the standpoint of the industry. It has been prepared following a thorough investigation of the present status of television throughout the world

The committee points out its belief that the long experimental phase of television development is about to culminate That does not mean, it explains, that experimentation is at an end "On the contrary," the report continues, "the experiment now takes on a larger scope, with the emphasis shifting from technical research (although technical development will simultaneously be intensified) to economic and social aspects The public, from the role of spectators, will become participants in the project, and on the extent and manner of that participation the effects on the motion picture industry will depend.

"That such effects will be evident in the next two years is altogether to be expected That the repercussions will result in revolutionary changes in motion picture production and exhibition within that period is unlikely.

"As we have pointed out before, the complexity of the television field and the magnitude of its artistic and financial problems are an automatic brake in this respect, and it might be added that this is true of competitive and cooperative potentialities alike

"As regards the latter, when television comes into its own it may well open up a vast market for films especially designed for television distribution. Should competitive factors predominate, it is quite obvious that the strongest interests in the television field cannot afford to ignore their own very substantial stake in the business of aural broadcasting

"Although radio is nowhere near the end of its growth, financially it has become a mature industry, mindful of its investment in the present while looking into the future, and this tendency constitutes a protection, if one is needed, for the other entertainment industries as well

"And yet, modern technology has its own dynamic imperatives. It will not and should not stand still New industries are needed, and if their coming is troublesome, it will be far more troublesome if they do not come

"Television is one of them and it is a year nearer We therefore repeat what we said in our last report that the situation is one which calls for continual observation and analysis by the motion picture industry, and to an increasing degree as events take their course.

"Accordingly the Committee is of the opinion that the Academy Research Council should immediately proceed to a more thorough consideration than has been undertaken in the past of the prospective relationships between television and motion picture production and exhibition.

"In the opinion of the Committee this investigation should cover the artistic, technical, legal, and economic phases of the subject Therefore, in order that future activities may encompass all phases of the subject, the committee recommends that it be enlarged to include representation from those other branches of the industry in a position to contribute a wider background to its considerations"

▼

THE British Journal of Photogrs phy, in its issue of October 21, tells of the appeal for funds made by the National Film Library Committee At a meeting on October 16 there was screened a program of pictures which opened with a production made in 1896 by the Lumiere brothers. It was the first commercial subject to be displayed in England.

From that point there was shown a succession of films made in England and abroad Then followed "The Conjuror," an early work by George Melies; a film record of Queen Victoria's funeral, "The Great Train Robbery," Griffith's "Simple Charity," featuring Mary Pickford; Italy's "Dante's Inferno" of 1912, "a selection of extracts illustrating the development of Charles Chaplin from a music hall star to the 'screen's greatest clown,' one of which contained the beloved Marie Dressler in her first film part"

The most worthy aims of the society are to preserve for posterity films of national and historical value and through its loan section to distribute copies of these films to educational and other organizations

"The work of preservation and distribution of copies is a costly matter," concludes the Journal, "and in order that it may be carried on it is to be hoped that the National Film Library will enjoy the co-operation of the film trade and of the filmgoing public"

■

Down in Buenos Aires there is generous recognition of the relative importance of the photographic director in the production scheme Argentina Sono Film in its posters exploiting its major production of "Madreselva" leaves no doubt in any one's mind that its photographer really is a part of the staff that created it by bracketing with the names of the musical composers "Photografia John Alton, A S C."

■

There are two announcements among others this present month that are of real importance in the 8mm field—the appearance very shortly of a three-lens turret from the factory of Bell & Howell along with a critical focuser Also from Stith-Noble Corporation came word that company at last has licked the plenty tough job of securing a duplicate of 8mm color

If this Hollywood company's achievement in 8mm color duping has been as successful as its parallel research effort in the field of 16mm color then indeed will there be reason to be pleased at the result

■

Coursin Black in the November issue of Photography of London has a vitally interesting page under the striking title of "Study Your Mood Before Your Meter." Some five million new addicts set forth on the picture trail in 1938, he declares in his opening paragraph. Is there any informed person prepared to refute that statement?

As to the meaning of "correct" exposure, no one has yet expounded that, the writer says, adding he has been in the game only eleven years and naturally couldn't be expected to know What he describes as a most significant little phrase is that one wherein he suggests about all he has attained is that he knows what is "correct" exposure for the type of pictures he likes to make.

"The photographer must learn his feelings and preferences before he studies his meter readings," continues the writer. "My trait of always liking dense, impenetrable shadows and contrasty highlights means my exposures always strive for those effects. My composition, lighting and subject-selection are governed by those things I rarely take half-tone detail because I like half tones to merge with shadows It's just my own particular taste Yours is very likely different."

The photographer emphasizes the importance of development, declaring the amateur should realize that development is just as important as exposure—and most convincingly he tells why

FILMING SMALL GAME

By Ormal I. Sprungman

Photographs by the Writer Unless Otherwise Noted

If you haven't the time for wild life filming, a Kodachrome reel on the swans in your city park will hold much audience interest

IF you're really a vest pocket filmer, you'll lay off the dinosaur subjects and pick on something your own size. Small game is made to order for small cameras. Small cameras are built for poking into every nook and cranny. And when human craniums once swing into action, a ground squirrel or a pocket gopher has about as much privacy as the proverbial goldfish.

It's one thing to shoot wildlife close-ups by means of remote control or use a trigger contraption whereby the animal takes his own picture as he reaches for bait.

But to double up for hours, with camera focused and trigger finger ready, waiting for a prairie pup to emerge from his home or a chipmunk to pop out on a limb probably demands a lot more patience than common sense.

Yet there's a real thrill in watching an untamed youngster steal out of his runway, rise up on his haunches within reach of your arm, and give you the once-over while you go through a session of moviemaking.

A sudden false movement will send him scampering into his hole, but slow, steady movements, on the other hand, will arouse curiosity to the point where you can literally talk him into the desired poses.

Pull Up Close

A movie outfit with a high-powered lens is not so essential for this sort of work since shots usually are made in open sunlight or under partial shade. An f/3.5 camera is suitable, but it is quite necessary that the lens focuses sharply somewhere between two and four feet.

Longer distances mean that the recorded image will be so small that projection will be unsatisfactory. Hence, pull up as close to your subject as your camera allows.

If your movie camera is not equipped with automatic focusing or a range finder accessory, carry along a pocket-size metal tape and measure each distance carefully. By using a small lens stop, such as f/8 or f/11, when weather permits, you increase the depth of your picture and thus diminish the chances of your fur-clad subject from stepping out of focus.

To prevent jittery movies, step on a rope or cord looped around one side of the camera for firm support.

When you choose a gopher colony for your initial invasion pick a day when the animals are active. Select a likely looking hole and squat noiselessly beside it. Measure the distance, set the lens aperture and shutter speed, and then make yourself comfortable.

After footage is exposed, lower the camera slowly, crank up the motor, check lens opening and distance, and lift the camera up into position before the face.

If this movement is done casually, your subject will become unwary and unafraid, even switching his position to watch your antics, thus providing you with a fresh shot from a different angle.

A few summers ago up in Alaska the writer and his partner were camped in a dilapidated log cabin on the shore of lonely, mountain-hemmed Summit Lake, 200 miles inland from the coast.

Grizzlylike Squirrels

Located high above timberline, we were right in the midst of the big game country, and every day we made regular jaunts into the surrounding brushlands, picture-hunting with movie and minicam.

But the salmon weren't running, and

1 *This [illegible] judgement of [illegible] quail was taken from the bird reel of W. G. Sipe of Atlanta, Georgia, whose film won seventh place in Sports Afield's recent nation-wide camera contest. Game bird movies are always interesting.*

2—*This young ground squirrel was photographed under our cabin in Alaska by the squat-and-wait system.*

3—*A fur scarf dangled before this zoo inmate held his attention during this portrait close-up.*

4—*This attempted jail break would add interest to any amateur-made movie.*

5—*Squirrels are natural-born actors. In fact, you could build up an entire reel on a day in the life of one of these furry fellows.*

6—*Blinds are sometimes needed when photographing squatting birds.*

If good pictures pump ub at this [illegible] hard hold, employ portable neckpod [illegible] when shooting small game [illegible]

Like these pelican, many of the inmates of city parks will furnish humorous antics for home movies of small game

the fish-pawing bears which usually come down to feed at stream-side during this season were far back in the hills

Beneath our cabin, however, we discovered a whole family of ground squirrels of grizzlylike proportions, which we befriended with offerings of table scraps—burned baking powder biscuits we couldn't devour, and homemade pie crusts that were impossible to penetrate with human teeth

Small wonder that our young models—which provided excellent camera fodder in our idle moments, lived even long enough to pose for us after such a bone busting diet!

Hunting small game with a movie camera offers thrills which even big game filmers will never know. For those purists who do not film wildlife in captivity there are opportunities for good cine reels no farther away than the door of their home

If you bothered to make a list of your feathered, backyard callers, you would probably find a score of birds paying regular visits. What could be more appropriate for the small movie filmer than a picture record of some of these chirpsters in funny or unusual poses?

Killing an Adage

Title the experimental reel "Birds of a Feather," and show that the old adage about the same critters flocking together is all wrong by cutting in shots of a chickadee for instance, sharing a piece of suet with a jay, or a robin and flicker tugging at opposite ends of an elastic earthworm

Consult your local library for a record of those birds which are neither natives of your state nor migrate through it. With this list in hand, ask local naturalists to direct you to frequented spots, thus saving you hours of searching. Many species, however, can be filmed about the house with the camera concealed behind door or window.

When filming bird silhouettes against the sky, employ a yellow filter to bring out any clouds. Use your cine titler to shoot close-ups of the tracks of birds in mud, sand or snow, and follow these track shots with interesting bird close-ups

After the reel is edited and titled, dub in musical background and sound effects. Double disc recordings of the songs of such birds as the tufted titmouse, indigo bunting, barn swallow, crow, redwing blackbird, red bird, bobwhite and canary are available at reasonable cost from one of the record companies.*

Every city park has an array of red and gray squirrels, tame geese and swans, and most every woodland camp is alive with chipmunks, field mice and camp robbing jays. Baiting will attract newcomers.

A close-up of a chipmunk rolling a prune stone about in his jaws or fetching a burned flapjack from the outdoor fireplace will provide laughs aplenty.

The groundhog and whistling marmot of Montana and Wyoming are comparatively easy to photograph, but the prairie dog colony, with its alert army of spies, is difficult to film even with a telephoto.

Although predator hunts are becoming more commonplace, what amateur cinematographer has ever attempted to make a movie record of such a gunning? A fox movie would be a distinctive novelty apart from the usual barrage of deer, moose and elk films which the average camera-minded huntsman seeks.

Filming a Foxhunt

Open your fox film with a close-up of a newspaper headline revealing that a fresh hunt is on. Next show a close-up of a shotgun shell being inserted in the chamber, a dog wagging his tail, a hand patting his head, boots moving over the fields, and finally swing into a semi-long shot of the posse itself.

Concentrate on close-ups of the hunters' faces, the dogs in action, with a much-surprised fox hot-footing it over the ground. The best camera angle will be a little ahead of and to one side of the group.

After you have filmed the dogs and hunters for continuity inserts, try for a fox in flight. Rest your finger on the camera trigger, and start shooting while you are bringing the camera up to eye level. The blurred opening frames can be cut out when editing, but the real advantage is the quick-trigger training this exercise affords.

To complete your reel, follow with close-ups of skinning a hide and collecting the bounty. Only one other scene should be more highly prized; namely, a fox trailing and capturing a pheasant!

When you have exhausted all small game possibilities, try filming a coon hunt at night with flares for illumination. The third prizewinning movie in Sports Afield's recent nationwide camera contest was made in this manner.

"The Coon Hunt," 400-foot 16mm night film, grew out of the planning of E. W. Meyer of Reedsburg, Wis., who has been moviemaking for over seven years.

Photographer Meyer burned up some three dozen half-minute flares on two dozen separate field trips to produce a 12-minute movie.

To aid him in his experiment and safeguard against possible fire hazard in the woods, he built a flare holder with

* Gennett Records, Richmond, Ind., or Starr Piano Company, 1341 South Flower street, Los Angeles, Calif.

(Continued on Page 525)

Announcing

EASTMAN'S NEWEST, FASTEST 16mm. FILM

CINÉ-KODAK SUPER-XX

MORE than twice as fast as Ciné-Kodak Super Sensitive Pan, and over four times as fast as regular Ciné-Kodak Pan, this new super-fast film more than doubles the possibilities for making unusual movies under difficult conditions. Good movies much earlier or later in the day . . on dark days . . in slow motion, with telephotos or color filters, under poor light . . of basketball games, skating exhibitions, parties, and other indoor activities . . and movies indoors with ordinary room lamps (50 or 60 watts) . . all of these are easy with Ciné-Kodak Super-XX.

Super-XX has such great speed that a neutral density filter (N. D. 2) is needed to prevent extreme overexposure when used with bright light. With this filter, having a factor of 4x, Super-XX can be exposed like regular Pan.

Super-XX is available in 16 mm only—50-foot roll, $4, 100-foot roll, $7.50; 200-foot roll, $15; 50-foot magazines and packettes, $4.25. Prices include processing.

EASTMAN KODAK COMPANY
ROCHESTER, N. Y.

Christmas

CALLS FOR COLOR

While you will undoubtedly want to make some unusual Christmas shots on Super-XX, Kodachrome is first choice for holiday movies—reproducing all of the scenes, decorations, and activities in their bright seasonal colors. Available in two types for both 8 mm. and 16 mm. cameras—regular, for color movies with daylight—and Type A, for use with artificial light. Prices, both types. For Ciné-Kodak Eight, $3.75, for 16 mm. cameras 50-foot rolls, $4.75, 100 foot rolls, $9; 50 foot magazines and packettes, $5.

Rocking the Earth in Miniature

By Richard H. Lyford

THE Atlas Mountains stood gallantly, peacefully in the late afternoon sun at the northern rim of Africa—a guardian to the low, flat expanse of desert to the south, an obstacle to the calm blue water of the Mediterranean

Suddenly—there was a terrific explosion! One of the peaks, from summit to base, cracked in pieces and blasted skyward, five miles up!

The Atlas range was no longer a guardian—no longer an obstacle. The blue water of the Mediterranean turned black as it rushed fiercely through a gigantic, smoldering channel and churned up the vast sands of the Sahara into a murky sea

Someone cried in the dark, "My God! Where in the world did you get those?"

I spun around, cut the projection switch, turned on the lights. A friend of my brother's had stepped silently into my projection room We were the first witnesses of a newly developed roll of film I had forgotten the eruption sequence was so near the start of the roll and it took me by surprise as well

Ninth Movie

Five days previous I had pushed the exposure release, hollered, "Let 'er go!" and the explosion came as I closed my eyes, got plastered with dirt and soaked with water What the results might be on film, I dared not imagine

The "eruption" scene was one of the many miniature sequences staged for our latest 16mm feature-length production "As The Earth Turns," completed last February in Seattle

Since February, 1932, with the aid of a group of dramatically inclined friends, most of them in college at present, I had been producing amateur photoplays This was my ninth attempt. Originally I had presented stage plays in my basement theatre since 1924.

My motion picture organization, R. H. L-National Productions, was a result of a little theatre group "gone Hollywood."

I never seemed to have trouble writing stories, and, filming but nine pictures, have written well over fifty complete scripts that were thrown aside, many of them because the production costs would be too high.

In July, 1937, another wild idea struck me like a sledgehammer I sat down at the typewriter, started to "clack" Japan and China were at war, as was Spain, in fact all the European countries were barking at each other.

What a perfect set-up for filming a prediction of the next world war! What an excellent opportunity to make a plea for peace

When the Urge Strikes

Within a week the script, with all the spoken lines and each individual shot, was complete. I drew up the plans of every single set and prop, figured out my cast, what type of makeup and costume each player would wear, and even

went on short trips to select ideal spots for "location shots."

But when an idea like that strikes me I've got to get it down on paper before I feel normal again. Like a locomotive releasing steam, I anticipated another "dead script," but figured I would have a lot of fun digging it up in a year or so and reading it over.

An older friend of mine, who knows photography and whose criticism I always have valued, read the script a few days after its completion and remarked, "Don't tell me you're going to make this?"

"Why not?" I asked.

"It's impossible! There's a limit to everything and you've practically reached yours in 'Huxley Inn'."

Rash Promise

"The Mystery at Huxley Inn" had been filmed the year before. His statement caused me to snap back a challenging expression I had always regarded that picture as just a so-so.

"If you can make this picture according to the script, I'll eat my hat!" That final statement started the fuse burning.

[illegible] in the [illegible]shop building miniatures [illegible] the Earth Turns."

Exactly eight days later, Miss Barbara Berger, talented leading woman from three of our past productions, stepped on Set No. 1 and the United States naval wireless station sequence was under way for R.H.L.-National Production Number 67 (58 stage plays, 9 photoplays).

"As the Earth Turns" presents a fantastic story in the near future. An ingenious scientist concocts earthquakes, floods, tidal waves, eruptions and train wrecks from his futuristic hide-out in the wilds of Labrador, in an effort to end a horrible European war which is exterminating humanity in gross lots.

His power is recognized only by a retired physics professor and two newspaper reporters who make a desperate search to locate the scientist before he goes completely berserk and rocks the earth upside down.

The dramatic end of the story was placed on the shoulders of Barbara Berger and Alan Hoelting, the news reporters, and Edwin C. Frost, the professor. However the complete success of the picture depended upon special effects—miniatures.

Four Years Making

I had learned a great deal about miniatures in a previous feature-length picture, "The Sea Devil," a world war story which we started in 1933 and finally completed in 1937. For any "scaled down" bombardment scenes we used dynamite caps with 2½-inch dynamite fuses which were supposed to go off in four seconds.

This gave two seconds to get away for the unfortunate fellow elected to light the fuse, and two seconds for me to get the camera running before everything happened. This system worked off and on and was eventually banned after a disastrous incident.

A miniature submarine was supposed to torpedo a miniature oil tanker which was scaled down to three feet in length and had every minute detail down to railings, stairways, anchor chains, etc. Imbedded in the hull were five dynamite caps waxed and tied together and con-

Shooting important scene on one of 25 sets built for "As the Earth

nected to our standard 2½ inch fuse which stuck out of a side port hole

It floated ten feet off the shore of Lake Washington awaiting its doom as one of my friends on the "technical staff" waded out in bare feet, struck a match, lit the fuse and made a quick get-away.

"Bam" Just Delayed

I sat on the shore tensely as good Pan film whined through the sprockets at sixty-four per! Four seconds passed—as did five, six, seven and ten

At twenty seconds I was a complete nervous wreck, and stopping the camera, mopped my brow. A forty-two foot shot of a ship floating peacefully on the water lay wound up on the take-up spool

"That five cap business apparently doesn't seem to work," I muttered, "We'll try it again."

"Bam!" The ship blew into a thousand splinters! Flabbergasted, I stood with camera idle at my side, watching the funnel spin fifty feet into the air. The "fuse" system was discarded

In "As The Earth Turns" the train wreck sequence has stirred up more audience reaction, caused more compliments and brought up more questions than any other single scene in the picture

A strange tidal wave created by Pax, the scientist, has washed away a section of the famous trestle which runs across Salt Lake A westbound train, failing to receive the warning, rushes out on the trestle

Fooling Public

The locomotive approaches the break, roars off the end and plunges into the water as the cars helplessly follow like a string of sausages Actually there were two trains—two trestles I borrowed a four-foot steel model of a perfectly detailed locomotive but unfortunately couldn't find passenger cars to match.

The engine was run off its trestle alone—then the cars, which were only fourteen inches long, were filmed separately on a smaller trestle with the camera moved closer to keep everything in proportion Special cutting made this break unknown to the audience

The earthquake scene ran a close second to the train wreck, but was not staged in miniature. A two-story collapsible set, plus flour, plaster, wooden bricks and 4 by 4 beams gave the players involved an uneasy night's shooting

The main flaw of the mountain eruption was due to the fact that the model was built too small and shooting at sixty-four frames a second was not enough to slow down the explosion The set had four mountains built out of sand, dirt, sponge rubber and fake snow.

The highest peak stood about twenty inches and had they all towered about three feet and loaded with explosives the effect would have been more realistic

Three Plane Crashes

The script called for three airplane crashes, the most realistic one a German D-7 Fokker which was shot down in flames for a scene that jumped back to the World War in 1918 The more important crash sequence earlier in the picture was not as successful.

In the story the reporter and professor finally locate Pax's hideout in Labrador and, knocking the pilot out, make a get-away in a ten place Lockheed transport with a Boeing B-17 four-motored army bomber in hot pursuit

Losing the bomber in the fog over Quebec they end up by crashing in the Labrador mountains I built a scale model of a Lockheed with a forty-two inch wingspread, and for the crash substituted a fragile tin foil left wing and engine nacelle in place of the original wooden one.

Behind Schedule—No Retake

The plane was supposed to plunge into a canyon, on wires, skim the ground, shear off the wing on a mound and slide along on its belly.

When it hit the mound the more rigid center section caught hold, stopping the plane dead in its tracks and spun it up

Heroine Barbara Berger, in gay mood, tries to tease a smile out of serious Producer Lyford

on the nose where it paused a moment then dropped back. The model was too badly damaged to make a quick repair and, being behind schedule at the time, I never replaced the scene.

The two explorers, after a climb through the mountains, stumble on to Pax's home in a valley and find the heroine, whom Pax has kidnapped because of her discovery of his location, safe and well taken care of.

At this point, Pax, who is seeking eternal peace on earth, finally, by wireless, manages to make the leading powers draw up an armistice. Twenty minutes later, Paris is completely destroyed by an enemy force.

His peace treaty being violated by the European powers, Pax decides to go ahead with his plans to rock the earth and wipe out civilization.

Villain Destroyed

The girl then pleads with him that as long as humanity exists there will always be conflict—war. "Death is too easy a punishment. Give them life, and let them suffer the aftermath."

For an instant Pax is stymied by her statement, then regains his original determination, throws the fatal switch, but something goes haywire with his machinery. A short circuit creates havoc and destroys his entire power plant and small "city."

This called for miniatures and plenty of them! Rod Basset and Jim Leipper, two veteran members of the technical staff, stayed up two nights with me and together we built the entire set-up, which covered an area of 100 square feet.

Each individual building or tank was blown to bits—the explosives being hooked up to a switch box and set off electrically.

For many of the miniature shots I borrowed a Victor Model 3, which had a high speed of sixty-four frames and a fast Zeiss f:1.4 lens. Otherwise I used my faithful Eastman model B-f 1.9. In all, twenty-five sets were built, ten of which were miniature.

Uses 3000 Feet 16 mm.

The picture was completed in seven and a half months and ran six weeks at the Oriental theatre (my basement theatre in Seattle) and three weeks "on the road."

Over three thousand feet of 16mm film was used—the last two hundred feet being climaxed in color. The film is completely scored with sound effects and timed to the tune of Igor Strawinsky's musical masterpiece "Le Sacre du Printemps."

Neighborhood friends who were dressed up in "tin hats," cartridge belts and gas masks for the war scenes boosted the cast up to fifty-two players.

"As The Earth Turns," filmed almost on a bet, was really an experiment in miniatures. However, my friend mentioned earlier in the story, apologized for his statement concerning the impossibility of producing such a picture, but his hat was never devoured.

KODAK DUPLICATING 16MM. COLOR FILM

USERS of 16mm motion picture cameras, either silent or sound, can now have their Kodachrome reels duplicated in full color, and in a quality comparing favorably with the originals, the Eastman Kodak Company announces.

Technical details of the duplicating process have been worked out at the Kodak laboratories in Rochester, and for the present all duplicates will be made there. Modestly priced, the duplicates will cost only a fraction more than an equivalent length of unexposed 16mm Kodachrome Film.

Any number of duplicates can be made from a chosen Kodachrome reel. This facility will be of particular value in the production of commercial and educational motion pictures, where a number of copies of one film must be available for widespread, simultaneous distribution.

Use of duplicates makes this possible at small cost and at the same time eliminates risk of damage to the original, which often could not be retaken.

All editing of the film can be done before it is sent in for duplication. Special effects in the original, such as fades, wipes, and lap dissolves, also appear in the duplicate. However, if these effects are not present in the original, they cannot be inserted during duplication.

When a silent film is to be duplicated only the film need be sent to Rochester. But, when a sound film is sent in for duplication, the maker must include a 35mm or 16mm matched positive print of high quality—either variable area or variable density and must indicate clearly and accurately the proper starting points on both the sound track and the 16mm. original.

Prices for the full-color duplicates from 16mm. Kodachrome film are:

	Silent	Sound
Orders for 77 to 100 feet	$10.00	$12.50
Orders for 100 feet or more, a foot	10	12½
Orders for less than 77 feet, a foot	13	16¼
Minimum charge	6.50	8.15

Setting up Pax's hideout

BELL & HOWELL'S FILMO TURRET 8 IS READY

THE big news in amateur movie camera realms this month is Bell & Howell's announcement of a turret model 8 mm Filmo camera that "has everything," its makers say

In a camera so compact it can be cupped in two hands is incorporated a combination of features that would gladden the heart of a pro cameraman. Yet operation of the Filmo turret 8 is claimed to be so simple and fool-proof anyone who can read easy directions can become quickly conversant with every feature and its application.

The camera is characterized by a lens turret which accommodates three photographic lenses and also carries three positive viewfinder objectives As the turret is rotated, bringing a photographic lens into position before the aperture, the correct viewfinder automatically is positioned in front of the finder It is thus impossible to use any one of the three lenses with the wrong viewfinder.

Another unusual feature is the permanent critical focuser, located horizontally opposite the photographic aperture. By rotating the turret through one-third of a revolution the lens in use is brought into position before the critical focuser. The image presented to the eye by the critical focusing system is magnified eight times, permitting very precise visual focusing.

The positive type viewfinder furnished in the new camera is the same, in effect, as that used on professional cameras and incorporated in the recently announced Filmo 141 16 mm camera. In this viewfinder the picture area is projected in such a way it cannot vary with the angle at which the eye looks into the eyepiece

The starting button is situated in a new position—on the visible rear surface of the turret support plate In this position it is not easily moved by accident, yet is extremely convenient to operate. The starting button does double duty, in that a downward pressure results in motion pictures and an upward pressure exposes single frames, making possible the production of animated cartoons and trick titles.

The two models offer two speed ranges of four speeds each—Model 134-K, 8, 16, 24 and 32 frames a second; Model 134-J, 16, 32, 48 and 64 frames a second

Each model will be furnished with one lens—a 12½ mm. F 2.5 U F. Myal Anastigmat, and corresponding viewfinder objective, as regular equipment Additional lenses offered as supplementary equipment include the following, in screw type mounts.

One-half inch F 2 5 B&H Anpax in focusing mount; 1-inch F 2.7 U.F Taylor-Taylor Hobson Lens; 1-inch F 2.7 TTH Lens in focusing mount, 1-inch F 1 5 TTH Lens in focusing mount; 1½-inch F 3 5 TTH Lens in focusing mount; 1½-inch F 3 5 B&H Telate Lens in focusing mount.

Viewfinder objectives are available for use with above 1-inch and 1½-inch lenses, as is also a combination carrying case designed especially for the Filmo Turret 8

New Smart Darkroom Outfit Introduced by Agfa Ansco

Amateur photographers will be interested to know that an addition has been made to the line of Agfa photographic equipment—a deluxe darkroom outfit that provides all the essential materials for developing and printing This outfit, which is packaged in a substantial wooden box with a dark walnut finish, includes a new Agfa masking print-frame a new Agfa Safelight with bulb and filters for use when handling paper or film, and a copy of the popular 60-page, illustrated book, "Developing and Printing Made Easy"

Also included in the new outfit are three 5 by 7 inch steel trays finished with white, acid-resisting enamel, one dozen-sheet package of 4 by 6 Convira paper, one 2-ounce bottle of Rodinal developer, five M-Q developer tubes, one half-gallon size can of Agfa acid hypo, one eight-ounce footed glass graduate, one 10-inch stirring rod, one stainless steel thermometer, two stainless steel film clips, one four-inch print roller, four 12 by 12-inch blotters for drying dull-surfaced prints and one 10 by 12-inch ferrotype tin for drying glossy prints

The new Deluxe Darkroom Outfit is made by Agfa Ansco Corporation in Binghamton N Y., and retails at $9 75

B & H Promotes Crim

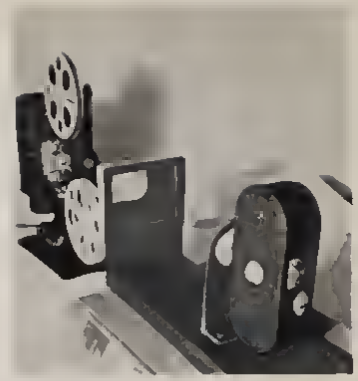
Bell & Howell announces the appointment of W. E. Crim as assistant controller

For twelve years Mr Crim was with the Chicago office of Price, Waterhouse & Company and for four years with the Allen-A Company, Kenosha, Wis

New Bell & Howell Filmo Turret 8 movie camera

INJECTING STORY INTEREST IN NON-DRAMA

By ROBERT W. TEOREY



Set-up of camera, titler and projector for taking back-projection superimpositions

SCORES of articles are written describing methods in achieving correct exposure, composition and lighting when taking motion pictures. In carefully following these rules we generally procure many excellent shots of which we are justly proud—and a sense of satisfaction usually is felt in what we consider a job well done.

But—is the job well done? What action do we take with these pictures after the roll is returned from the processor to make them a really excellent source of entertainment to our friends? There is no doubt that we are well satisfied with the roll so far as pictures are concerned, but now that we have them, their fullest possibilities for screen enjoyment should be carefully considered in every respect.

The first task is to edit the roll to work related scenes together. During this procedure all objectionable under and over exposures should be cut out and discarded. When this is done the tempo of the roll demands consideration and shots that drag or are overlong should be pared down to the correct length.

When the editing has been completed we have a roll of film with scenes related and smoothly running during projection. Our work is far from completed, though, for now some method of knitting the shots together should be employed and in most cases this is done with the aid of titles.

Inject Thread of Story

However, titles alone make our scenics or documentaries merely a series of pictures with names or descriptions tagged to them, so an addition to titles is extremely desirable to aid in the knitting process and add story interest.

There are several ways in mind that film continuity and a thread of story can be injected into a reel, and no doubt there are others that can be worked up depending upon the material you have to work with.

A series of shots tied together with titles and a measure of story interest will when presented to a critical audience win the fullest approbation, consequently warming your heart with an inner satisfaction that a little extra time and work spent in preparing your pictures for viewing is well worth while.

The latter idea has often been used to tie scenes together. I used a variation of this with some still photographs somewhat in the following manner. The opening scene fades into view a young woman opening a letter containing typewritten sheets and a sheaf of snapshots.

As she reads the letter an excerpt flashed on the screen serves as a title and explains that the pictures were snapped while on vacation and will give her an idea of the places visited.

Cut in Short Flashes

A cutback to the young woman shows her picking up one of the snapshots for examination. From there the scene cuts to the first motion picture shot of my scenic. Short flashes of the subject looking at the stills were cut into the reel to carry on the idea while more excerpts from the letter served as titles where needed.

Upon conclusion the letter and snapshots are shown being returned to the envelope with a fade-out concluding the performance. Quite simple, yet very effective.

During my first couple years of shooting I secured many shots of family and friends. They proved to be just a lot of snapshots on moving picture film, so I decided to work them into a photo album idea. The opening scene brings to view the family seated on the davenport examining a snapshot album.

As the cover is opened a close-up is revealed taken over the shoulder of the one holding the book. The title of the picture, "The Family Album," was let

Left, enlargement from 8mm color scene creating illusion of reverie.

Right, enlargement from color picture of 8mm frame of title layout used.

tered on the first sheet in block letters White ink was used for the purpose

The sheet is turned bringing to view the title of the first scenea in the album As this sheet is turned, a glimpse of stills on the next page is seen which cuts immediately to the first movie shot described by the title

Result Worth While

Several short cuts of the family pouring over the album are cut into the reel, while the title pages flash on the screen wherever required. Very little effort was required in working up this idea, yet the result made something interesting out of the pictures and we enjoy seeing them now where before the roll merely caught dust.

About a year ago I shot about 200 feet of 8mm color film in Hawaii After viewing the results on the screen several times I felt very dissatisfied with them Pictorially all right—but story and continuity as far as possible in a scenic entirely lacking

Three of the shots were titled with views of sign posts erected by the Hawaii Tourist Bureau The make-up of this descriptive marker consisted of a figure of King Kamehameha in a pointing attitude secured to a post, while underneath the figure was hung a descriptive sign

Finding that several additional titles were needed and rather than cut out my natural titles I decided for the sake of uniformity to make a replica of the King from cardboard, which I painted with water colors.

Erecting the figure on a wooden stand I hand printed my titles with black ink on white cardboard which could be interchanged on the figure. The use of a small palm and the blue sky solved titling to my entire satisfaction

Back Projection Enters

My next task was to tie in an idea for story interest After a deal of thought I decided on a reverie theme to run through the reel and promptly titled my film "Hawaiian Reverie." To carry out the idea necessitated a combination of back projection, masking and double exposure

This sounds too complicated and difficult, but I found it quite easy to handle and the results quite ably demonstrate it can be done as explained in the following

Having taken the movies while in Hawaii I decided I should be the one to day-dream about the beauties of the Paradise of the Pacific The fade-in on the opener brings to view a medium long shot of myself seated in an easy chair, I am engaged in reading a magazine

Having a desire for a cigarette I pick girl Cutting back to the first scene I lower the picture to my lap, lean back up a package on an end table at my side and light up. As I replace the cigarettes my eye notes a framed photograph resting on the table Dropping the magazine I pick up the picture and study it

A close-up cut in at this point reveals a bust size likeness of a lovely Hawaiian into the chair and slowly puffing on the cigarette I gaze in abstraction toward the ceiling

The next shot is the superimposed back projection on a medium close-up As this scene opens, the double exposures fade in, filling the upper corner opposite my gaze creating the reverie effect This cuts into the opening scenic taken upon my arrival in Hawaii

Carrying on Idea

Short flashes of these double exposed scenes were cut into the reel at various places to carry on the idea. Upon conclusion, a cut back to myself still seated in the easy chair shows me coming to life, replacing the picture on the stand and crushing the burned down cigarette butt in an ash tray as the scene fades out in the finale

Needless to say the completed picture changed my entire outlook on it to one of pride in accomplishment and desire to have my friends view the result

To gain the desired effect involved in the reverie I timed the leader on a new roll of film threaded in my camera and shot several feet of the medium close-up of myself puffing on the cigarette and gazing toward the ceiling The length of this shot was also timed for reference in making the double exposure.

The camera set-up on this scene was more or less from the side to show a semi-profile of myself with the back of the chair near one side of the frame line to allow ample room for the superimposition on the other

The chair was far enough removed from the wall so that the latter would not register distinctly in the picture, thus permitting the double exposure to stand out clearly

When the roll of film had been completely exposed I reloaded it into the camera, timed the leader as in the beginning and found myself ready to shoot my back projection I set my projector on a table and threaded my Hawaiian reel

Getting Right Size

I next secured my camera to a titler and set this combination on books until the easel was opposite and a few inches from the projection lens. A piece of ground glass—frosted side toward the camera—was then slipped into the easel of the titler

A square of black paper was next cut to the size of the ground glass An upper quarter section was cut away while the remaining mask was fitted into the easel in front of the glass and adjusted by means of the title framing mask until only the upper quarter desired of the titling area or ground glass in this case was visible

On this section I next projected my film, moving the projector and focussing until the required size of image was achieved.

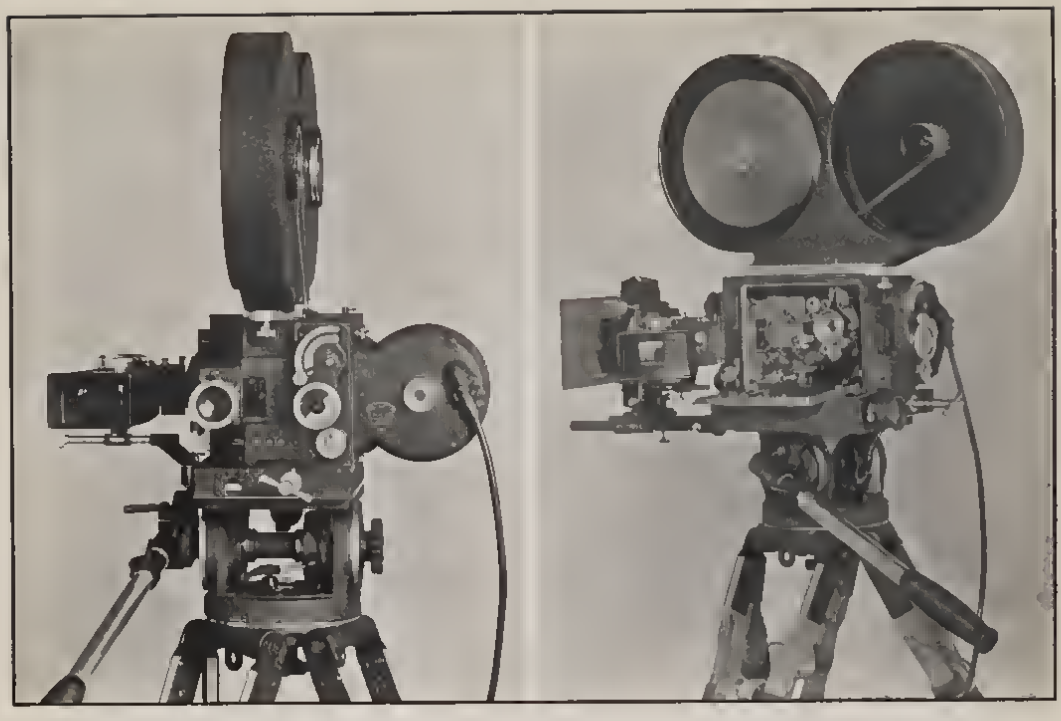
Using a meter I measured the foot candles from the camera angle of this tiny area and found that f5 6 seemed to be a general average. My projector was running at approximately 24 frames a second, thus preventing synchronization with the camera shutter with resultant dark frames that would tend to spoil the illusion

Rethreading the projector for the actual taking of the scenes, I darkened the room, started the machine and as the first scene required for my effect flashed on the ground glass I started the camera and faded in for the scene used in the opening reverie

From then on it was just a matter of starting the camera as desired scenes for cut-ins throughout my scenic appeared on the frosted glass

The result of the masked superimposed back projection was all I could ask for, and although a slight flicker was apparent in it due to the rapidity and nonsynchronization of the projector with that of the camera the effect enhanced rather than detracted from the illusion.

Here are the two new tripods issued by Agfa. On the left is the No. 1, extended and collapsed ($3.95), and on the right the No. 2, also collapsed and extended ($4.95)



Mitchell Camera's Sound Model showing it (left) from operator's position and (right) the film movement

Mitchell Nears Majority

(Continued from Page 496)

work and in 1934 introduced the Studio Model, which is the ultimate in silence and efficiency

The camera is built around the Sound Model, but has its own housing which completely does away with mechanical noise. It can be used for all types of sound picture work without additional covering

The Studio Model has retained the best of the well known Mitchell features and in addition has incorporated several noteworthy improvements

The four-lens turret has been supplanted by a single lens mount of the bayonet type to which lenses of different focal length may be instantly fitted Each lens may be focused from either side or the rear of the camera.

Focusing, like the other models, is done upon a ground glass through a variable telescope which gives an erected image of either 5 or 10 times magnification

The large erect-image view finder, equipment of Mitchell cameras for years, has been retained on the Studio Model

By means of a gear system, as the lens is focused, the parallax and focus of the view finder automatically come into proper adjustment also

Noise elimination is accomplished by means of an outer shell from which the camera itself is completely sound insulated As an ensemble the Studio Mitchell is the latest example of streamlined efficiency available to the trade

Following by natural sequence to demand the Mitchell Camera Corporation introduced in 1936 its variable area sound recording system.

While designed primarily as a portable

Twenty thousand dollars' worth of special high-speed Mitchells purchased for United States Government and now in use around the world.

35mm sound-on-film double system recorder, the fidelity of recording is such that it meets all demands of studio service. The sound recording, or conversion of electrical impulses into light impulses, is done by a rugged galvanometer giving ample exposure on sound recording positive with a lamp current of 1 ampere at 6 volts

Built with the same precision as the famous line of cameras, the Mitchell sound recording system incorporates devices which have proved to give reliable and trouble-free operation over a long period of time

Latest addition to the corporations' cinema instruments is the background projector Introduced in 1937, it embodies methods of construction found exclusively in the Mitchell line

The film movement is similar to that used in the Studio camera, and so assures a perfectly steady projected picture with accompanying quietness of operation.

Today with more than 500 cameras actually in daily use all over the world, the Mitchell Corporation approaches with confidence its twentieth birthday The personnel is gratified because of the continuous and sincere response that has been evinced over a period of years in support of its high standards of mechanical workmanship, courteous service and willingness to advance with the needs of the motion picture industry

EASTMAN'S 16MM. SUPER-XX NOW READY

CINE-KODAK Super-XX film, four times as fast as regular Cine-Kodak panchromatic film, is now available for 16mm motion picture cameras the Eastman Kodak Company announces from Rochester.

Ideally suited for moviemaking under the adverse light conditions often encountered in fall and winter, Super XX film will be welcomed by all users of 16mm film for whom the day always is too short as well as those who have wished for faster 16mm film for adverse lighting conditions indoors as well as out

In the past an f 1 9 lens and the fastest film available were required for dependable football moviemaking — and even then pictures could not be taken at dusk or in the rain

Under adverse conditions, telephoto lenses which are necessarily slower in speed, were of little use But with the new high-speed Super-XX film many of these limitations are removed, and pictures never before possible are now well within the range of the photographer's equipment.

With the new film an f.2 7 telephoto lens (such as the 2½ and 4 inch long focus Cine Kodak lenses) is faster than an f 1 9 lens used with regular Cine-Kodak panchromatic film On the same basis of comparison a regular f 1 9 Cine-Kodak lens is equivalent to a lens working at the enormous aperture of f 0 95, faster than f 1

With all its extreme speed, Super-XX can be used for moviemaking under normal bright sunlight conditions—if a neutral density filter (No 2) is placed on the camera lens to prevent overexposure This filter is simply removed when light conditions become adverse, and the full speed of the film is then effective

The phenomenal speed of Super-XX film has been obtained without loss of quality or increase in grain size. The film is fully panchromatic, and produces pleasingly balanced renditions in black-and-white from brightly colored subjects

It is processed at Rochester or Eastman branches which process other Cine-Kodak films, and the finished positive shows the fineness of grain which is characteristic of all Eastman reversal processing As with other Cine-Kodak films Super-XX film, 16mm is processed without charge

Indoor Exposure Table

For Cine-Kodak Super-XX film and bare Mazda lamps in rooms with medium-light colored walls and furnishings. Exposures are for Cine-Kodaks operated at normal speed Halve the illumination for half-speed pictures

Diaphragm Opening	Total Wattage of Lamps	Distance from Lamps to Subject Feet
f 1 9	100	2½
	200	3¼
	300	4¼
	400	5½
f 2 8	200	2¼
	300	3
	400	3½
	500	4
f 3 5	300	2½
	400	2¾
	500	3¼
	600	3½
f 4 0	400	2½
	500	2¾
	600	3
	800	3½

When using bare No 1 photoflood lamps and an f.1 9 lens opening, place one lamp 6½ feet from the subject, or two at 9½ feet, three at 11½ feet, four at 13 feet

An f 2 8 lens opening requires one No 1 photoflood at 4½ feet, or two at 6½ feet, three at 7½ feet, four at 9 feet

With No 2 photofloods use half as many lamps, or the next smaller diaphragm opening

Spencer Lens Develops Color Projector

A NEW projector for 2 by 2 inch and 3¼ by 4 inch color slides has been announced by Spencer Lens Company of Buffalo It is said to project a 2 by 2 inch slide with greater brilliance than does the usual 1000 watt auditorium lantern slide projector with a 3¼ by 4 inch slide

So much illumination is available that an iris diaphragm is sometimes needed to control the light on the screen when using thin slides or projecting to small gatherings For dense slides or large magnifications the full intensity of the illumination can be utilized

The facilities of this convertible instrument will be available for both amateur and professional

It will be offered three ways: For 2 by 2 inch slides only, for 3¼ by 4 inch slides only, and for 2 by 2 inch and 3¼ by 4 inch slides.

The only difference is in the optical units, which can be exchanged in a few seconds

The new projector is equipped with a 750-watt lamp, cooling fan, three element condensing system with heat filter and projection lens Lenses range from 6½ inch (f2 75) to 10 inch (f4 23)

It weighs 21 pounds and measures 21 inches in length, 7½ inches in width and 8¾ inches in height

The Spencer organization developed the color projector after extended experimental research.

▼

Victor Marketing New Type of Continuous Projector

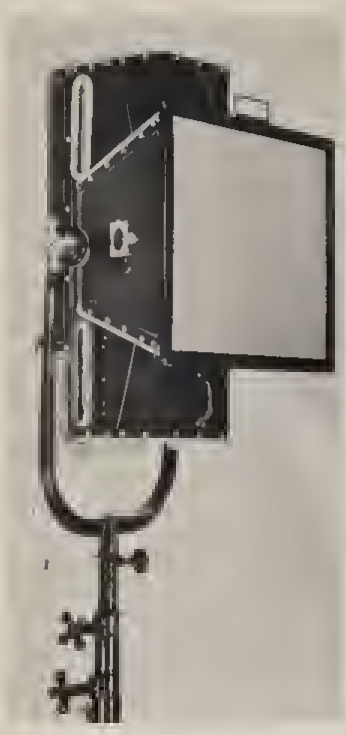
A new 16mm portable continuous projector, which is being placed on the market in both silent and sound models by Victor Animatograph Corporation, Davenport, Iowa, embodies a patented "advance-feed" principle which insures trouble-free performance and protection against film destruction

The great "bugaboo" of continuous projection always has been the eventual tightening up of and the loss of freedom in the film windings in the film magazine or around the film driving rollers.

The backbone of this principle is the positive regulation of the amount of film fed to the intermittent film-moving member of the projector

In the Victor continuous, the film is wound loosely around two large wheels which are driven synchronously by an endless belt which also acts as a conveyor for the film The film literally hangs from the upper wheel, which actually carries the film instead of drawing it along

The film capacity of standard models of the unit will be 500 feet Special models with greater capacity can be supplied on order



Left front view of new BM Twin Arc Broad showing standard diffuser and color temperature indicators. Right, rear view of the new BM Twin Arc Broad with simple motor control—acoustically treated

Shirley's First Color

(Continued from Page 443)

field when arcs were developed which gave the light necessary for filming color, and yet operated with the quiet demanded by sound recording

When it was decided to film Shirley Temple's "The Little Princess" in color an immediate problem presented itself, in that arc broads had to be found which would operate with sufficient quiet to permit the child star to speak in her natural tone of voice and not have it smothered even slightly by the sound of arcs

Walter Strohm, chief engineer at the Twentieth Century-Fox studio, settled the problem with a battery of Bardwell and McAlister, Inc Twin Arc Broads, which are acoustically treated to absorb any noise which might come from carbons

Studio Buys Fifty Lamps

Each is equipped with a motor that has a special acoustical mounting designed to filter its characteristic frequency Sound tests showed the lamps to be 40 db below average adult voice level, which made them perfect for the recording of Shirley's voice A battery of fifty of the Bardwell & McAlister Twin Arc Broads were purchased by Twentieth Century-Fox studio, for use in such great Technicolor pictures as "The Little Princess," "Jesse James" and "Kentucky"

These arcs, incidentally, are a boon to cameramen and to the studio budget balancers who find their frugal operation a big lift to the company's pocketbook

It is interesting to look into the construction of the Bardwell & McAlister Twin Arc Broad It combines two principles of operation which have been considered good studio practice for years

The mechanism consists primarily of an upper and lower carbon carrier mounted on slide rods and fed together by a screw which is driven by a motor Mounted on the upper carbon carrier and moving with it on the feed screw is a striking solenoid employing a pair of clutches to bring the carbons to a predetermined gap for burning During a burn the clutches and solenoids remain tight, the carbons being fed together by means of the motor The only function of the clutches and solenoid is to strike the arc The light is very steady and of consistent color value, because the carbons are constantly fed together at their rate of burn and there are no transient variations in the gap, which are known to be one of the causes of arc flicker and color change This accounts for one of the main reasons why the Bardwell & McAlister arc is so valuable in the photographing of Technicolor pictures

In striking, the carbons are releasably gripped by the clutches Restriking the arc will allow the carbons to hit and pull apart again at the original predetermined arc gap

Keep Color Constant

Advantage has been taken of this striking feature to produce a lamp on which the photographer could confidently rely to keep its color constant during the take This feature makes the lamp of great value for close-ups and key light on a color set

The predetermined gap and the amperage in the arc circuit have been set to Technicolor specifications for photographic value

Referring to the lamp construction, the reflector is of special optical design to give greatest efficiency from a twin source, the light to be incident on the diffuser The glass diffuser is the standard size It is made of 2-inch strips of factorlite glass, which design brings heat breakage to a minimum

In operation the lamp should be burned with the top carbons positive for best efficiency A peephole in the side of the housing is provided to determine this condition from the arc itself This is considered more reliable than any mechanical polarity device which may get out of order.

When burned with polarity correct a trim lasts 1 hour 45 minutes At the end of this burn, new upper or positive carbons are placed in the lamp, and the old lowers or negatives are boosted for a second burn

Operation Economy

Thus two burns, or 3 hours 30 minutes, are obtained from six carbons This gives 2 hours 20 minutes average for one trim (four carbons) The greater efficiency materially means the saving of hundreds of dollars in carbons

Two pointers with time scale on the side of the lamp, one for each carbon holder, show the operator at all times just how much burn he has left in the lamp When either carbon holder has reached the end of its travel, a switch automatically cuts off the motor thus not endangering the lamp from overburning

Both Mr Bardwell and Mr McAlister have spent the last twenty-five years in the motion picture industry

Their firm, Bardwell & McAlister Inc., has made great strides in the development of motion picture lighting equipment in recent years In addition to this revolutionary new Twin-Arc Broad they have produced a complete line of incandescent equipment, the most recent of which is the new 500 watt Baby Keg-Lite, which already is being used extensively throughout the industry The plant is at 7636 Santa Monica boulevard is equipped to meet any studio requirement for lighting equipment.

THREE NEW EASTMAN NEGATIVE EMULSIONS

(Continued from Page 490)

ative opens up another possibility for use which may prova very important

There has never been a film introduced to the motion picture trade with the recommendation that this film be used exclusively for exterior photography, but since the speed of this Background X is approximately 75 per cent that of Super X, this emulsion naturally falls into that category.

Added to this is the contrast characteristic which is but slightly higher than Super X and the grain structure which is nearly identical to Background Negative These three factors, therefore, make it possible to recommend the use of Background X for normal exterior motion picture production.

Another field in which the Plus X emulsion can be used to great advantage is in the making of the composite projection background scenes With the speed of this new Plus X film it will be possible to stop down the lens and thus carry greater depth of focus and generally enhance the photographic quality. This film will prove of decided advantage over Super X for this work

2. Eastman Plus X

This emulsion is in a sense to be considered as a replacement for the Super X Negative. Up to this time there has been no condemnation of the Super X, and the presentation of the Plus X type was not made because of weaknesses in the Super X type.

However, there have been requests for films of higher speed than Super X, and this emulsion, therefore, fits into that category.

In the light of past emulsion knowledge it was not possible to make an emulsion faster than Super X without increasing the graininess characteristics, but with the advance in emulsion knowledge it has become possible to make a faster emulsion with even less grain.

This is exactly the case with the Plus X emulsion. Previous paragraphs of this paper definitely prove that this Plus X emulsion with its double speed over Super X is of finer grain characteristics than the Super X.

These two factors, therefore, make it imperative that this Plus X emulsion type be used in place of Super X. It should be stated, too, that the finer grain structure definitely lends to a finer photographic quality.

This emulsion, Plus X, should be used for interior photography, there being no necessity except under adverse lighting conditions to use a film of this speed for general exterior photography, for to accomplish it it would be necessary to alter lens stops, employ diffusion discs, filters, etc., for decreasing the effective exposure There is no need for this with the films now available.

3. Super XX

As indicated in previous paragraphs this emulsion is one of exceptionally high speed and excellent photographic quality. The prime purpose behind the manufacture of this emulsion was the desire to give the cinematographer every possible advantage that film speed could give.

Newsreel men particularly are often confronted with the necessity of photographing historical events under extremely poor lighting conditions Camera lenses, and camera speeds, cannot be materially altered at this time

Therefore, the only possible chance of obtaining good photographs of certain events is dependent upon the negative emulsion's ability to pick up light intensity of low value It is felt this Super XX film will accomplish this

There are also many conditions arising in the cinematographic art where high emulsion speed is needed Often such conditions arise in actual studio practice Since the graininess characteristic of the Super XX emulsion is not appreciably greater than the Super X emulsion now in current use, there is no reason at all why cameramen should hesitate to make use of this film when the need arises.

It is unnecessary to add that this film should prove very useful for the photographic recording of boxing or wrestling matches, or any other kind of sport or assemblage where the only light available is the general floodlighting condition of the auditorium type.

CONCLUSIONS

It is hoped that the facts and discussion contained herein relative to the three new Eastman negative films will enable any interested cinematographer to make successful use of them

Filming Small Game

(Continued from Page 511)

reflector mounted on a tripod After the camera was set up at a new location and adjusted on its tripod, the flare was touched off in its holder, while the camera recorded the action of dogs, hunters and coons.

Keep Camera Busy

If you're one of those unfortunates who must spend his winters in the frigid, snow dunked northlands, there is no reason why movie cameras should lie idle during the white months In fact, some excellent game studies can be made after the flurries once start

For instance, have you ever tried to catch the exodus of the local birds, the giant flocks of redwings and the swallow migrations?

Have you ever been on hand when wildfowl finally broke away from the ice-crusted lakes and started its southward flight? There is an unforgettable thrill for those who can film a sky darkened by swishing wings or patterned with swift-moving "vees."

When camera hunting for ducks or geese, borrow somebody's blind, set up tripod and camera, snap on the telephoto, and you're ready for action

Use the same precautions in filming as you would if your side-arm were a scattergun instead of a movie camera Camouflage your presence with duck hunting garb Keep low and avoid unnecessary movements when birds are in flight

While the one-inch lens will be good for flock pictures, the three, four or even six-inch telephoto will bring the singletons up close to fill the entire finder Since duck speed varies from one to three miles a minute, slow motion movies are in order to reduce the speed and permit a study of wing movements

One Minneapolis moviemaker, A. J. Leigh, has even mounted his camera on a revamped rifle stock in order to shoot his movies in the same manner he fires a gun.

Snowtime brings out the snow birds, the suet-gorging chickadees, and a host of other feathered fellows whose tracks and habits offer interesting cine studies If there is a feeding shelter nearby, build a blind conveniently close at hand, set up your folding camp chair and do your filming at ease.

If the weather becomes too severe, erect a tin-covered framework camouflaged with brownse, install a portable heater, cut ventilating holes and an opening for the lens, and shoot with comfort and class

Pheasants were made to order for Kodachroming. These year 'round guests may go hiding when the hunting season is on, but when snow blankets the hills they're usually out looking for food

Rabbit Hunting Thrills

Perhaps one of the easiest ways to film these wary wenches is to trek out with the local sportsman's group when it makes its circuit of the pheasant feeding stations

For super-action, those free-wheeling rabbits offer the utmost in cine thrills On a bunny hunt, nobody knows when a youngster will trip you up, zig-zag madly over the drifts, and plop into a hidden runway.

So if your meat is john-rabbits you'll need something more than steady nerves and a knowledge of rabbit lore As a matter of fact, a topnotch bunny film is even more difficult to shoot than a moose, elk or deer study in distant wilds Yet who bothers with rabbit filming? They're such commonplace critters!

Small game filming is indeed an escape for the stay-at-home, who, with limited resources, often turn out reels as daring as those made by sportsmen who trail African lions and Arctic bruins

Notes Of The Movie Clubs

Philadelphia Cinema Club

The November meeting of the Philadelphia Cinema Club, set back one week so as not to interfere with Election Day, took in the vacation film contest.

The limitation was 100 feet of 16mm and its equivalent in 8mm. A first and second prize was offered in each group. The prize winners were:

First prize, 8mm., Frank Hirst's film "Peggy's Cove"; second prize, 8mm., Ernest VandenBorch's "Autumn in the Poconos"; first prize, 16mm., Neill MacMorris's "Autumn", second prize, 16mm., Arthur J. Hurth's "Dogwood Blossoms in Valley Forge Park."

The group was also fortunate in having present A. B. Japikse, president of the League of Cinema Amateurs of the Netherlands. Mr. Japikse brought with him several thousand feet, in both color and monochrome, representing the work done in the Netherlands.

The film was much enjoyed.

The club has its full constitutional membership of 75 voting members, and in addition has arranged for associate membership for those wives of members who desire to participate in the affairs of the organization.

B. N. LEVENE,
Chairman of Publications Committee

▼

San Francisco Cinema Club

At the meeting of the San Francisco Cinema Club November 15, Clifford Nelson of the Recreation Department talked on color photography.

Not only is he an authority on color, but has written a book on this subject. His talk was supplemented by several reels of colored pictures.

Member F. C. Youngberg also screened his vacation trip into the high Sierras.

E. G. PETHERICK, President

▼

La Casa of Alhambra

At the October meeting of the La Casa Movie Club of Alhambra the following officers were elected for the ensuing year, H. P. Carnahan, president, John Wilson, vice president; and Stanley Ash, secretary.

The feature of the evening was a showing of western football games in slow motion, and a surgical movie by G. K. Sherlock.

Mr. Johnson, Mrs. Neiger and T. R. Smith, members, also showed films.

On the following Monday evening the entire club of one hundred sixty-five members and guests attended the Camera Club, which is a weekly event on the C.B.S. over a Pacific Coast hook-up. The event was very interesting and instructive.

R. A. BATTLES,
Publicity Secretary.

▼

Peninsula Cine Club

A group on the Monterey Peninsula has organized a club of amateur camera men and held its first meeting Nov. 16 in quarters donated to permanent use by the Grove Pharmacy, 481 Lighthouse avenue, Pacific Grove.

Knute G. Mathison, 1040 Shell avenue, Pacific Grove, was elected president, and the undersigned secretary-treasurer. President Mathison appointed a committee consisting of Ronald Hodges, Harold H. Daugherty and the secretary to draw up constitution and by-laws, to be adopted at the next meeting, December 14.

Plans were made to canvass a list of some twenty prospective new members, and to issue monthly a mimeographed bulletin, detailing club activities and other news of interest to the members.

After the business meeting Mr. Rhodes showed his 16mm. black-and-white "Alone At Last!" and "A Little Journey." R. I. Ferguson projected about 400 feet of unedited 8mm. Kodachrome recently taken in and around the beautiful Lake Tahoe country.

GILBERT I. RHODES

▼

Brooklyn Cine Club

The Brooklyn amateur cine club has been organized in Brooklyn, New York, with the following officers elected to serve for the first year. Irving Pollack, president, Charles Benjamin, vice president; Ruth Schachner, secretary, and Sam Mason, treasurer. Club headquarters are at the Hotel Bossert, Brooklyn, where meetings are held fortnightly on Wednesdays.

The tentative program for the coming season includes lectures, demonstrations, discussions and showing of films on all phases of moviemaking. Two beginners' groups have already been formed for the purpose of receiving field instruction in the use of their equipment.

Brooklyn 8 and 16mm amateurs interested in joining before the membership rolls close are urged to communicate with Irving Pollack, 913 St. Marks avenue, Brooklyn.

IRVING POLLACK, Secretary

▼

Los Angeles 8mm. Club

The November meeting was held at the Bell & Howell auditorium on the 8th. The following officers were elected for 1939:

President, Al Leitch; vice president, Vincent Hague; secretary, Leon C. Sprague; treasurer, Ed Pyle.

We were then privileged to see a beautiful 16mm. picture in kodachrome of Yellowstone and its environs taken and shown by Dr. Elton Walker of the L. A. Cinema Club. Dr. Walker answered all questions and his picture was a genuine treat.

It was announced the annual contest and banquet will be held at the Victor Hugo Cafe in Beverly Hills on Saturday, December 10, that all films must be in by midnight, November 30, and that tickets may be secured at Eastman Kodak Store, 643 South Hill Street or any officer.

BION B. VOGEL, Secretary

▼

New Photographers' Adhesive

A new adhesive which combines the everlasting qualities of good rubber cement with the ease and smoothness of application of mucilage has just been introduced in the photographic field by Wholesale Radio Service Company, Inc., 100 Sixth avenue, New York, under the name Lafayette "Foto-Stik."

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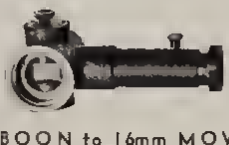

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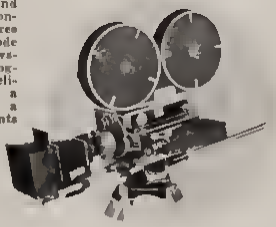

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